

10-16 July 1986

Vol 5 No 28

Digital Research to launch new DOS

- Enhanced version of the DOS Plus operating system to be launched at the mass market
- The system incorporates both MSDOS and CP/M compatibility
- In all probability it is the operating system for the new Amstrad PC

Full details below and inside

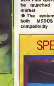
EXCLUSIVE information on Dos Plus 1.2 the new low-end operating system from CP/M developer Digital Research has been obtained by *Popular Computing Weekly*

continued on page 4 ▶

WIN!

- Swords and Sorcery II
- Melbourne House hologram plus 8256 Hobbits and LOR

SPECIAL AMSTRAD SUPPLEMENT



◀ Glass from Quicksilva

- All the latest software and hardware for the CPCs and PCWs
- Graphic applications
- Book reviews

COLOUR FEATURE

Amiga games

The new range from Ariolasoft via Electronic Arts




GET YOUR NAME ON THE
LEADER BOARD
If you have ever bought another golf simulator – shoot yourself! If you are ever considering it – save yourself a bullet!
ZZAP64
Quite honestly, leaderboard makes all other golf simulations look clumsy and antiquated in comparison
ZZAP64
This is the sports simulation of the year – if not the decade!
ZZAP64
TAPE £9.95 DISC £14.95
Practice Driving Range
Multiple 18 hole golf courses
Amazing sound
The most realistic 3D golf simulation available
U.S. GOLD
And swing your way to a record round
Now you can become a golf pro and experience the thrill of having your name up on the "Leaderboard"
With this amazingly realistic simulation you get a true perspective view of your golf game
As you play on different 18 hole courses on levels varying from amateur to touring professional you'll need skill concentration and control to come in under par
Features:
• Choice of club, distance, type of shot (hook, slice, putting) and more
• Realistic Sound
• Practice Driving Range
• Joystick Controlled
• Multiple 18 Hole Golf Courses
• Automatic Scoring
ACCESS Software Incorporated
CBM 64/128 Coming soon for Spectrum and Amstrad
LEADERBOARD GOLF
TEE SHOT
APPROACH SHOT
PUTTING
U. S. Gold, Unit 10, The Parkway Industrial Centre, Heneage Street, BIRMINGHAM B7 4LY. Tel. No. 021 3593020

July 10-16

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ABC

How to submit articles Articles which are submitted for publication should not be more than 2000 words long. The articles and any accompanying programs should be original It is breaking the law of copyright to copy programs out of other magazines and submit them here – so please do not be tempted We cannot guarantee to return your programs – so please do not send your only copy **Accuracy** *Popular Computing Weekly* cannot accept any responsibility for any errors in programs we publish, although we will always try our best to make sure programs work.

Oric's successor from France

THE ORIC is back Over a year after Oric Products crashed and was sold into France the latest machine, the Oric Telestrat, is just five weeks away from its UK launch According to UK importer WE Software, the machine is compatible with the Oric 1 and Atmos, but has a faster Basic, disc serial parallel and midi interfaces and will also accept cartridges

With a single disc drive it will retail in this country for around £420, but despite the high price level is described by WE spokesman Mark Willis as a possible competitor for the 84 and the Amstrad Micro prices have traditionally been higher in France than in the UK, but the Telestrat's price here will actually be over the French price of 3990 Francs (about £380), and this is liable to confine the machine s market to dedicated enthusiasts

In France the Telestrat is intended to dovetail with Minitel, the local equivalent of Prestel

WE suggests that its built-in telecommunications software could be used by individuals who wish to produce their own Viewdata style displays and databases In order to adapt it for use in this country WE is currently considering the production of a Prestel cartridge for the machine

Micronet offers free modems to new subscribers

MODEMS HAVE HIT an all-time price low – they re free, but only if you buy a subscription to Micronet. The on-line database service has obtained large quantities of bankrupt stock VTX5000 modems for the Spectrum and Modem 2000s for the BBC and is to use them to promote the service

Both modems are basic 1200/75 units geared principally for use with Prestel-type systems A similar promotion run by France's equivalent of Micronet had been highly successful, and Micronet marketing manager Lyn Bennett expects good results in this country

'We are confident that the success of the French initiative will be mirrored by Micronet in the UK and hope that other communications networks will follow our lead

Doctor and the Medics to appear at PC User Show?

MEN IN WHITE coats will shortly be heavily involved with EMAP Exhibitions organiser of the PC User Show – and that a official Fed up with being confined to boring grey boxes while other shows sport Gina the high wire artiste and caged ligers, EMAP claims that the ' main feature" of the show will be a PC Clinic ' involving expert consultants dressed as doctors administering advice, help tea and sympathy,

Popular Computing Weekly feels bound to point our that playing doctors in a public place could lead to visits from the vice squad, and that the British Medical Asociation generally takes a dim view of people practising without a licence

MUD prices cut?

PRICES for MUD BT s online dungeon game have been cut The MUD starter pack is now down to £4 95 while access charges have been halved

According to MUD spokesman Simon Dally the cuts are due to improvements which mean the system doesn't slow down drastically when large numbers of people are using it

Oric – rumours of death were exaggerated

DR's new DOS plus

continued from page 1

The system is largely but not fully compatible with the MSDOS operating system produced by Microsoft and used on the IBM PC and most of its lookalikes, with *dBase* and *Lotus 1-2-3* being among the industry standard programs it will run The new system has the added advantage of being able to run CP/M 86 programs

It takes up only 90K of Ram, and although this is high by traditional home machine standards, it is relatively low by the standards of business machines Like DR's 68000 processor operating system. GemDos it is ' Rommable ' ie, it can be supplied on Rom rather than disc

It will also operate with DR s Macintosh-like graphic environment, Gem, although the company is keen to point out that is intended to be an operating system in its own right rather than a vehicle for Gem

Dos Plus 1 2 also incorporates a measure of multitasking in that it can perform one foreground and three background tasks simultaneously Its ability in this field is not, however particularly sophisticated firstly because the home and small business users it is aimed at aren t judged to need much multitasking and secondly because full multi-tasking generally needs a great deal more Ram than is found on the cheaper micros

The system is intended to be licensed by PC suppliers rather then sold in the shops and DR refuses to talk about deals in the pipeline but its specifications conform to what is known about the Amstrad PC's operating software

The Amstrad PC will run a variant of Dos Plus alongside Gem, and its manuals refer to it having a multi-tasking capability Because of the success of the PCW machines Amstrad will also be looking to being able to have some measure of software compatibility between the PCs and PCWs and Dos Plus' CP/M 86 compatibility is an advantage here While not directly compatible with the Z80 version of CP/M it will allow for much easier software conversion

This could be the start of a business software price breakthrough mirroring the massive price drops in business hardware

PC USERS SHOW
PC CLINIC
waiting list

Dearth of programmers hits UK software houses

PROGRAMMER starvation appears to be hitting the UK's software houses as they gear up for the Christmas market. Several softwars houses have advertised for more programmers recently but maintain that the response has been distinctly patchy.

Mike Meek of Mikro-Gen is one of the most consistent searchers, advertising for 6502 programmers on a regular basis, but although the response is good he feels that the overall quality of the programmers is poor.

"Some of the applicants are very good but they know they're very good – we had one guy who wanted £26,000." Inflated expectations, he feels, are hampering the industry and although his company is one of the most frequent advertisers for programmers he doesn't expect to actually hire more than one a month.

A product manager for one major company confirmed this view, pointing out that the lead time for games software was at least three months, and that most programmers with a track record had therefore been hired already to work on the autumn release schedule.

Again he felt that many programmers wanted too much money. "Freelancers are sending in budget games and wanting £14-15,000 which is ridiculous." An advance of £1 000 is more common for a budget game, with £500 being perfectly possible.

Pete Stone of Palace Software has also advertised recently and had received around 20 replies to an ad in *Popular Computing Weekly* the day after the issue was published. Of these he felt three were worth considering, one being a novice, but a very good novice, and another being experienced – possibly a little too much so. "He's written operating systems for computers that are commercially available and is probably out of our league – he'll probably want over £10 000 basic." Salaries at Palace vary from £6 500 for the lowest paid to £14 500 for programming veterans.

Good programmers will get royalties on top of this, but £10,000 is actually quite high by the software industry's standards, as bitter experience has taught companies to pay for results. Mike Meek quotes £4 500 as a start salary for a complete tyro (with an increase after three months if their work is good) with his better programmers getting "five figures plus royalties."

Some of the larger companies will pay more for a start salary, but claim to be more selective of applicants. "We pay a basic of £10,000," said a representative from one such company, "and we find the people we reject tend to turn up at certain other houses."

He found even at this level that getting programmers was difficult, but Steven Wilcox of Elite and Alison Beasley of Mastertronic had a different tale to tell. Wilcox says he needs mainly "first class freelances" for conversion work, and finds he can get enough of these paying five figure sums for the best.

Beasley says Mastertronic gets most of its programmers by referrals from other programmers and finds supplies are perfectly adequate. What the company does lack, however, is ideas, as it finds many good programmers lack these. More and more the company is trying to pair up non-programmers with ideas with programmers.



Setanta Software's *Sprite Designer* for the Amstrad incorporates a multi colour sprite designer which enables up to 30 sprites to be designed and used within a Basic program. The program also includes a range of extra commands.

Setanta also produces a speech synthesiser that comes with stereo amplifier and speakers, a Memory Boss that allows the user to examine and print out the contents of memory, and a toolkit. Details from Setanta on 01-733 7014.

Acorn's Risc is ready to go

THE ACORN Risc Machine (ARM) is now available for developers, price £4 500 excluding VAT.

The current version is for use with the BBC and Master series micros, but an IBM PC version will go on sale at a similar price in August.

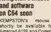
The ARM is based on reduced instruction set chips which offer a claimed execution rate of four million instructions per second running at 8MHz.

Meanwhile Acorn founder Chris Curry has left the company's board, although he has agreed with Acorn to continue working on the Communicator project.

Kuma draws graphs for Atari STs

KUMA has released *K-Graph* a Gem-based business graphics program. It allows simultaneous display of up to four graphs showing different data and has a sideways printing option, selective screen dumps, enlargement/reduction of graphs, editable marker patterns and line styles, automatic scaling and free-floating text. It costs £39 95 and can be used in conjunction with the K-Spread spreadsheet.

Details from Kuma Computers, 12 Horseshoe Park, Pangbourne RG8 7JW (07357-4335).



Kempston's mouse and software on C64 soon

KEMPSTON's mouse will shortly be available for the Amstrad 6128 and Commodore 64 complete with bundled software. The company won't say whose software will be included but the package is intended to be at least equivalent to *Art Studio*, which was bundled with the Spectrum version of the mouse. The device is to be priced at £69 95.

Details from Kempston Micro Electronics, 4 Manton Lane, Bedford MK41 7HY (0234-327544).

Minter's latest

JEFF MINTER'S latest 64 game, *Iridis-Alpha*, is to be launched on 27 August under the new Hewson-Llamasoft label, which is a product of a manufacturing and distribution deal Minter's Llamasoft has made with Hewson, publisher of the hit game *Uridium*.

Llamasoft is still currently involved in a similar deal with Ariolasoft, which is due to release a back to back C16 tape of *Lazer Zone* and *Matrix* on 26 July.

Iridis Alpha will cost £8 95 for tape and £12 95 for disc.

Product News

Software-only speech synth from Superior

SPEECH! is a speech synthesiser for the Commodore 64/128 and Amstrad 464/664/6128 from Superior Software and is due for launch at £9 95 on 17 July

The speech synthesiser consists solely of a tape, and requires no additional hardware, and is intended to be easy to use being based on prefixing English sentences with *"Say*

Details from Superior Software, Regent House Skinner Lane, Leeds LS7 1AX (0532-459453)

Datamyte stocks bumper printer crop

DATAMYTE is now stocking a new range of Panasonic dot matrix printers alongside three new Silver Reed daisywheel printers The Panasonic KX-P1092 is an 80 column printer with speeds of 180 cps in draft and 33cps NLQ It has a 7K buffer and costs £395 the KX-P1592 is a 136 column version operating at 180 and 38 cps costing £495 while the KX-P1595 also 136 column, offers 240 and 51 cps for £695

The Silver Reeds are the 12 cps EXP 420 at £267 the 25 cps EXP 600 at £540 and the 40 cps EXP 800 at £799

Details from Datamyte Computer Supplies, 52 Denby Stret, Leek Staffs ST13 5AJ (0538-383383)

Winchesters for the wealthy BBC owner

PROSPEROUS BBC micro and Master owners can now invest in a range of Acorn ADFS-compatible Winchesters and tape streamers from Amcom Software The winchesters come in ten '20 and 40 megabyte sizes costing £1 000 £1 060 and £1,650 respectively, while the streamer costs £1412

Existing users can upgrade their systems by the replacement of one cable

Details from Amcom Software 35 Carters Lane Kiln Farm Milton Keynes MK11 3HL (0908-569212)

Free utilities for Ultracalc Rom spreadsheet

BBC SOFT is to distribute a free set of utilities for its £79 50 *Ultracalc* Rom-based spreadsheet The utilities come on disc, and consist of a business graphics generator which will produce pie charts bar charts and line graphs a utility to highlight printouts with bold and underlined text a program to allow Ultracalc files to be transferred to other spreadsheets, a program to create exec files that lead back into the spreadsheet, a method of transferring Ultracalc files to and from Acornsoft's *Database*, and small machine code utilities to create and remove vertical lines between columns

Users wanting the utilities should send a blank formatted 40 or 80 track disc and stamps for return postage to BBC Software 35 Marylebone High Street London W1M 4AA (01-927 4128) The programs can also be downloaded from OwlTel on 01-927 5820

Hantarex colour monitor at under £200

THE LATEST monitor from Hantarex is the snappily named CT 9000/1 MR 14 inch colour monitor It costs £199 50 and has RGB RGB1, composite video and audio inputs

Details from Hantarex UK Unit 2 Lower Sydenham Trading Estate, Kengley Bridge Road London SE26 5BA (01-778 1414)

Diary Dates

JULY

16-18 July
PC User Show
Olympia, London
Details Hardware and software for IBM machines and their compatibles.
Organiser EMAP 01-608 1161

24-27 July
Acorn User Exhibition
Barbican Centre, London
Details: Hardware software and peripherals for the Electron BBC micro and Master machines
Trade only 10am-1pm on 24 July
Price: £3 adults, £2 children, £1 discount for advance sales.
Organiser Editionscheme, 01-349 4667

SEPTEMBER

3-7 September
Personal Computer World Show
Olympia, London
Details. Software and hardware for home, educational and business computer users. For the first time this year the show is to be organised in three separate halls – business games and education.
Price: £2.
Organiser Montbuild 01-487 5831

8th September
Official Commodore Computer Show
UMIST Manchester
Details: A wide range of Commodore hardware software and peripherals. Formerly the Commodore Horizons show
Price: £3 adults. £2 children, £1 discount for advance booking
Organiser Database Publications 061-456 8383.

26-28 September
Electron and BBC Micro User Show
UMIST Manchester
Details Software hardware and peripherals for the Electron BBC micro and Master machines Produced by Acorn
Price £3 adults, £2 children £1 discount for advance booking
Organiser: Database Publications, 061 456 8383

OCTOBER

3-5 October
The Amstrad Computer Show
Novotel London
Details: Home and business software and hardware for the Amstrad range of computers.
Price: £3 adults, £2 children £1 discount for advanced booking.
Organiser Database Publications 061 456 8383

30-31 October
Hampshire Computer Fair
Guildhall Southampton
Details Business computers and communications.
Price Free entry by business registration.
Organiser Testwood Exhibitions 0703 31557

NOVEMBER

7-9 November
Electron and BBC Micro User Show
New Horticultral hall Greycoat Street, London SW1
Details Hardware software and peripherals for the Electron, BBC micro and Master series.
Prices: £3 adults, £2 children, £1 discount for advanced booking.
Organiser Database Exhibitions, 061 456 8383.

21-23 November
9th Official Commodore Computer Show
Novotel London
Details: A wide range of Commodore Hardware software and peripherals
Prices: £3 adults £2 children £1 discount for advanced booking.
Organiser Database Exhibitions, 061 456 8383

22 November
The 6809 Christmas Show
Royal Horticultural Hall Westminster London
Details: Dragon software and peripherals.
Price:
Organiser Microdeal 0726 6820

Prices dates and venues of shows can vary and you are therefore strongly advised to check with the show organiser before attending *Popular Computing Weekly* cannot accept responsibility for any alterations to show arrangements made by the organiser

Letters

QL rights

The news that Amstrad apparently wishes to suppress any possible successor to the QL must be a blow to all those QL owners whose hopes had been raised by the prospect of the Thor

How would Amstrad s claim to all QL intellectual property rights stand up in law?

Owners of QLs many of them outside the UK surely have intellectual rights in their equipment which would be seriously devalued if Amstrad s claim is upheld

I very much hope that CST will go ahead and fight on this issue for I cannot believe that anyone has a moral right to suppress technical innovation of the kind represented by the QL and its proposed successor

M H Dodson
Otley
W Yorks

More comms

After reading Vol 5 No 26 I noticed that the communications section was too short and did not give the reader enough information in the software buyers guide

May I suggest that the comms section is a bit thin compared to the software sections? would an extra page be possible?

Also, although queries may be sent to David Wallin would it not be better if a comms problem page was added?

Finally when articles are submitted who should they go to? *Can* they be on any aspect of computing?

A G Coe
Canterbury
Kent

Although comms is increasing in popularity, it is still a minority interest. So at the moment we can't give much more space. As to problems, Kenn Garroch is happy to help out with comms queries in Peek & Poke. Written articles should be directed to Christina Erskine, the editor; and program submissions to Duncan Evans, techical editor. Articles can be on any subject but we don't accept product reviews.

A sour taste

When Amstrad bought the Sinclair name we learned that Mr Sugar was not interested in selling the QL

This was despite the knowledge that it was poor marketing that had let the QL down and that here was a real opportunity for salesmanship to score

However entitled Amstrad is to turn down the QL It is not encouraging for Sinclair afficionados But worse has come

Now we learn that Amstrad will seek to prevent anyone else producing QL developments Amstrad has said "They will have to ask us for permission and they are not going to get it " Blunt, brutal and unnecessarily so

Suppressing inventions is not in the best British commercial tradition nor in the best scientific tradition

Very nasty Mr Sugar You are leaving a sour taste in our mouths

E Palfrey
Cookham
Berks

No surprise

Your news item Amstrad blocks QL plans (Vol 5 No 26) went some way towards showing Amstrad s true colours But we should not express surprise at this block

Considering the nature of the Amstrad/Sinclair deal, it fits in perfectly with the company s policy

Sinclair has always been the thorn in Amstrad s side Surely it must be seen that the rights to Sinclair machines were merely a bonus The best feature of the deal was that it effectively wiped out the opposition

Let s be realistic the QL even though never the most successful computer competed with Amstrad s own range of micros So it should come as no surprise that Amstrad is not going to cooperate with any plans for its resurrection

Alan Sugar is not a millionaire for nothing He is a genius in the fields of business and marketing and the Sinclair deal must surely signal the demise of the QL

The deal may have done Amstrad the world of good The same cannot be said of the British micro industry as a whole

L G Scotford
Pevensey
E Sussex

Amstrad challenge

I would like to throw out a challenge to Alan Sugar to reply to the charge that his intention is destroy the name and credibility of the Spectrum and QL

It was obvious from the start when referring to the Spectrum as a pregnant calculator' what he thought of them

James Shepherd
Blyth
Northumbria

Corrections

Our thanks for your kind review of *Dragonhold* in Vol 5 No 25 of *Popular* Unfortunately a complete mess was made of our name and address which is Rubicon Computer Systems 11 Bannerdale Road Sheffield S7 2DJ, and *not* Computer Systems, 12 Bannerdale Road etc

Dr J R Maltby
Rubicon Computer Systems

C64 Complaint

I am writing to complain about Commodore's power units for its computers I have had a Commodore 64 for the past year and a half When I first bought my computer, the

Puzzle

Puzzle No 215

Take a pack of playing cards and remove the tens, and all the picture cards This will leave you with a pack of 36 cards – four of each value aces to nines

Shuffle the pack and draw at random any four cards Now using these cards place them to form a four-digit number which is an exact multiple of seven Aces count as ones, and you are allowed to place the cards in any order that you wish

So for example, if you draw ace two, five and seven you would be able to arrange them to form the number 2751 – a number exactly divisible by seven

What is the probability that the four cards drawn will allow you to do this?

Solution to Puzzle 211

To make the bet fair 692 cars should pass (Actually 692 cars will give a marginal advantage to Ben and 693 cars will five a marginal advantage to Jamie, but 692 is the *nearest* to a 0 5 probability)

Despite the fact that it would seem that 500 cars would be a fair number this is not the case Compare the problem with having 99 numbered counters If a number was chosen and then 500 counters were drawn the probability of the number selected being among them would be approximately 0 5 (To be exactly 0.5 there would have to be 100 counters not 999) However with the problem as stated the occurrence of a particular number plate does not preclude the possibility of that number occurring again This is equivalent to drawing the counter and if it is not the winning number replacing it with the rest before drawing again Because of this disadvantage extra draws have to be allowed.

The probability that the first car along will *not* bear the winning number is 998/999 The probability that the winning number is not on the first two cars it therefore (998/999) × (998/999) By continuing in this way the probability will slowly fall until it is at or just below 0 5 When this happens the odds will be at or about, even

The program simply performs this calculation keeping account of the number of terms added When execution stops 692 terms give a probability of 0 5000537 and 693 terms lower the probability to 0 4995531 9

```
10 C=999
20 N=1 T=1
30 T=T*((C-1)/C)
35 PRINT N T
40 IF T< 5 THEN STOP
30 N=N+1
60 GOTO 30
```

Winner of Puzzle No 211

The winner this week is P Belugou of Paris, who will be receiving £10

Rules

The closing date for puzzle **216** is **August 5.**

The threat in satellite surveillance

One of the biggest research areas in computing is that of Artificial Intelligence and in particular pattern recognition. Pattern recognition can be used in many applications, including robot vision and speech recognition.

Both these applications will become 'mass produced' items in the near future. Robot vision will be mainly used in industrial processes though it may find its uses in the home. Conversely, speech recognition software will be of most use in the home.

But there is yet another application for pattern recognition software – high resolution satellite monitoring.

At present this is a purely military field. Each country with access to the technology keeps track of what is happening at sensitive sites in other countries. A high-resolution imaging satellite passes over each site once or twice a day and sends digitised photographs back to a ground station where experienced personnel painstakingly go over the photos deciding what it is that they can see. With the image-recognition software being developed this process could be automated, though it is probable that each side will develop camouflage especially designed to fool the other side's computers.

But last year the French sent up a satellite called SPOT. This has a resolution of just ten metres, that is it can "see anything larger than ten metres across" and takes stereo image pairs. It signals the beginning of the civilian use of monitoring. Though SPOT is at the moment state of the art in the commercial sphere, it is not the last word in such technology. The military are well ahead, as usual. It is debatable what resolution has been achieved but it is probably in the range of five centimetres.

Considering how military technology has a habit of entering the public domain, we can expect civilian satellites with similar resolution coming into service sometime in the late 1990s. What will their market be?

Imagine a farmer taking out a contract with a firm to supply him with daily/weekly/monthly data on the condition of his crop, instant access to the latest data on the weather, plus accurate long range forecasts for his region. Local councils would be able to keep track of the condition of the road surfaces in their area. Another use would be to give warning of flood conditions. The government would be able to set up a system of monitoring old reservoirs/slag heaps, giving early warning of slippage. Such monitoring would save lives, yet would be prohibitively expensive using present methods. Further afield, satellites could be used in the detection of potential avalanches, again saving lives.

Unfortunately, the silver lining has a cloud – in particular, personal surveillance.

By 'personal surveillance' I mean using satellites to track the aforementioned man in the street, to see what he is doing, where, and with whom.

At the moment this is not feasible due to cost, time and technological limitations. We do not have the satellites, the money or the computers needed. It will necessitate putting a set of satellites in low-Earth orbit organised in such a way as to give 24-hour coverage of all Britain, and then analysing the resultant images – which could amount to a throughput of 2.5 thousand billion bits of data per *minute*, if a resolution of one centimetre were used.

If it were affordable it would be used. Already the police have experimented with an optical character recognition system which would be situated on bridges above major roads. It reads the number plates of the cars as they pass beneath. (The experiment was successful, but the high cost of the equipment has meant that the idea has been mothballed for the present. It will have to wait for cheaper electronics before it is put into use.)

An equivalent cheap experimental system would be a single satellite specially put into orbit, or even images bought from a commercial satellite. The police would then use the images of the crimes it just happened to detect. This could be set up in the next ten years.

But the full system would require an enormous investment. So – an impossible nightmare? Consider the savings – and the spin-offs. The police force could be reduced for the first time in history, while becoming more effective. Criminal court cases will often be simply a case of showing the presiding judge the satellite photo of the deed! Meanwhile, the 'eye in the sky' will discourage a lot of casual crime, again lessening the load on the police and judicial system. Just those three effects will go a long way to paying for the system. Then there are the images themselves – eminently salable items. In the end it will be more a case of waiting for the technology to be perfected than waiting for it to become affordable.

The technology is certainly coming. As already mentioned, satellite technology that could do the job will be with us in five years or less. The sticking point will be the processing of the images. With parallel processing, distributed processing, shorter cycle times, and a hierarchical system for image interpretation, where intelligent software decides which parts of the image need further processing after an initial low-resolution pass, we should have the capability in the next ten years.

Unfortunately the other side of the coin is more sinister. A repressive government would find such a system an invaluable tool. If someone was suspected of being a subversive, all the security forces need do is ask the computer to watch out for them and keep notes on where they go and whom they meet. It sounds like a dictator's dream, a citizen's nightmare.

A R Mullholland

Letters

power unit was faulty and I exchanged it at the shop.

About four weeks later it went wrong again, so once more I changed the power unit. Now, about a year later, the unit emits a loud humming noise through the television. To buy a new power unit costs £30.

Is there any way of getting a new power pack from Commodore without spending £30 if the guarantee has run out?

Craig Gladwell
Chatham

No Cowboy

After years (and I do mean years) of effort I was extremely pleased to see in Vol 5 No 25 of *Popular* a review by Tony Bridge of my adventure game *Starcrash*. Following Mr Bridge's appraisal of *Starcrash* I was persuaded to invest in some very modest advertising and telephoned my copy Friday June 27.

As it happened I had just purchased the June 26th issue of *Popular* (I do this every Friday – it is a habit like breathing). I glanced over the front page, flicked through the contents and started the serious stuff on page four.

The first thing I read is some editorial advice to readers not to buy software by mail-order. I have just forked out for an advert in a magazine which is telling my potential customers that the only sure way to avoid losing (their) money is to leave it in (their) bank account and not buy the amazing value survival simulation that I have on offer.

I think it very unfair to generalise in this manner when the majority of companies are not out to rip-off customers – some of whom are youngsters that have saved (or nagged) for weeks in order to afford the latest software masterpiece. Surely it would be far more productive to encourage readers to report difficulties with software suppliers so that magazines like yourselves can refuse to carry advertising from these companies.

As a non-specific computer magazine I have always looked

continued on page 10 ▶

to *Popular* as being first with the news as and when it happens and although sometimes fickle in its bias to one machine or another always gives fair program reviews the pick of short useful routines in the form of listings and Peek & Poke which has been of help on more than one occasion

I think it would be just one more service to the entire computing industry in general and your readers in particular if you would encourage feedback from dissatisfied customers at an early date and publish the information in time to prevent further victims of cowboys and incompetents

Here at Starcrash Software Systems, tapes are dispatched on the same day that a customer s cheque clears If a postal-order is received then the tape is posted the same or next day This should mean that customers receive goods within 10 to 14 days at the outside My advice is that they start making noises after this period and not wait for months after their cheque has been cashed

Mike Burley
Starcrash Software Systems

Star Letter

Copyright Righted

I read with interest your reply in the Peek & Poke column to the reader who inquired about the legal position regarding the use of copyrighted music in software

The situation in fact is extremely confusing – like most legislation To clarify it, I wrote some time ago to the British Copyright Council for guidance The gist of the reply was that yes it is an offence under the 1956 Copyright Act to incorporate copy right music in a computer program without the permission of the copyright owner

However here is where we enter the legal 'grey areas' The Council added It is not an offence to copy unless the whole work or a substantial part of it, is reproduced What constitutes a substantial part depends on its relationship to the whole work not only quantitatively but also qualitatively Each case has accordingly to be judged on its particular merits

Work that out! The period during which original works are protected by copyright is generally, the life of the author of the work and 50 years after his death For instance, *Happy Birthday to You* is in copyright until 2010 This particular song incidentally was sung by the Apollo IX astronauts in 1969

The only safe solution seems to be that if you have to copy anyone, copy someone like Beethoven

David A Edwards
Higher Blackley
Manchester

Honest, guv!

I refer to your editorial in *Vol 5 No 26* concerning the trading practices of some mail order software companies

I would suggest that your editorial was written without any regard for the numerous mail order companies who regularly advertise in your publication

As publishers of a respected magazine you undoubtedly have a duty to your readership to inform them of malpractices that often take place within our industry It is correct and proper that the 'cowboys are exposed and the sooner the better for all of us Your editorial highlights the problem, but at the same time it casts doubt on the integrity of the other companies that advertise every week in your publication

My company has been advertising for the last two to three years and we operate a policy whereby customers cheques are not cashed until the ordered goods have been despatched We also deal with several in Popular and from experience know them to be honest and reliable traders

In conclusion keep up the good work of exposing the 'cowboys' but please have more regard for the companies who try very hard to give satisfaction to their very valued customers

R J Gladwyn
UK Home Computers
Swindon

New joystick is a joy to use

If you are at all serious about game playing a good joystick is as vital as a clean monitor screen and a good supply of Coke That being the case it's good to see a new product on the market which returns to the basics of joystick design rather than concentrating on dubious gimmicks

The Cheetah Mach One incorporates several excellent design ideas, but is a traditional handle-base-fire button design rather than one of the recent rash of handle-less, base-less, or even button-less types which might have lots of high-tech appeal but which rarely offer the performance of a more traditional stick

The Mach One is firstly a microswitch device rather than a leaf-switch one I can't stress the importance of this too much – leaf-switches, which rely on two metal blades being pressed together are prone to oxidation which lessens the contact, and to excessive force bending the contacts out of place Not so with microswitches which react quickly and with little need for force, and which should last well

Mach One is also blessed with no fewer than four fire buttons, on the top of the stick in a "trigger" position, and one on either side of the base This means that left- or right handers can find a comfortable position

The most novel feature is the auto-fire slider When switched on it keeps the stick firing constantly UNLESS you hold a fire button down I haven't seen this idea before, but it's a good one – it means that you can keep up a withering fire to destroy the aliens, without accidentally blasting objects you might want to leave unharmed (Minter's goats for example)

Mach One also features four base suckers and because the stick action is so light, it's one of the few devices I've found which can actually be used with one hand while stuck to a table top

Mach One operates well, promises reliability and accuracy, and won't break the bank at £14 95



Product *Cheetah Mach One Joystick* **Machine** CBM Atari, Amstrad, Spectrum **Price** £14 95 **Supplier** Cheetah Marketing, 1 Willowbrook Science Park, Cricklewell Road, St Mellons, Cardiff, Wales, 0222 777337

The print for the paupers

Amstrad's policy of selling the PCWs as dedicated word processors has reaped handsome dividends

Even in the wider areas of business use the PCWs fill just about every need – with two exceptions If you need any form of printout other than dot-matrix – eg daisywheel or plotter – then you're stuck. Similarly if you want to connect an RS232 device such as a serial printer or modem

Amstrad has now remedied this shortcoming with the release of the CPS interface which provides both parallel and serial interfaces

It is a neatly designed device that fits snugly into the large expansion connector at the rear of the main unit Two screws are included for secure attachment

Use of printers attached to the interface is controlled from CPM with the DEVICE command A parallel printer is selected with DEVICE LST = CEN, and a serial printer with DEVICE LST = SIO

Control can be returned to the Amstrad printer either by resetting the machine or by using DEVICE LST = LPT

A more common use for the serial port will be micro-to-micro communicktions, either for file transfer between two machines in one office, or for connecting your PCW to a remote computer

For local file transfer you need a suitable cable and the MAIL232 program from the PCW system disc This allows the PCW to act as a receiver or transmitter or as a terminal to another computer

For remote communications (such as accessing Prestel), you'll need a modem and a comms software package

In fact even for local data transfer you'd do better to buy a comms package since MAIL232 leaves a lot to be desired It's hardly the friendliest of programs

So, do you need the CPS interface? If you're happy with the output from the Amstrad printer (and why not?) you hardly need to consider another printer However plotters are a different matter and PCWs are making inroads into many businesses of which draughting and design applications are a part

The likeliest use is for serial communications tasks and here again there are alternatives For example, file transfer might be better handled by buying a 5.25in disc drive formats

If you plan on doing a lot of comms work a dedicated RS232 interface will undoubtedly be cheaper The CPS therefore is only really worthwhile if you need both RS232 and parallel interfaces If this describes your needs then it's well constructed and reasonable value for money

Product *CPS8256* serial/parallel interface **Machine** Amstrad PCW8256/8512 **Price** £67 85 **Supplier** Amsoft, Brentwood House, 169 Kings Road, Brentwood, Essex CM14 4EF



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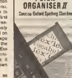
Minding your Ps and Qs

Oh boy, this is the one I ve been waiting for – a slur on all the English teachers I ever had no doubt *The Concise Oxford Spelling Checker* for the Psion Organiser II

I can t claim to suffer from dyslexia – I would hazard a guess that my bad spelling simply stems from congenital bone idleness to be honest but whatever the excuse, this package is going to assure that my Organiser II never strays far from my side What those clever Psion people have done is place 23 000 carefully selected words (that is the ones I can t spell) on to a datapack, together with a some nifty string searching software

Selecting the *Dict* option from the main Organiser menu, all you have to do is type in what you hope are the first three letters of the word presently escaping you, and a likely candidate will be displayed on the line below You can page through the rest of the possibles by pressing the *Exe* button Three letters is a minimum – if you type in more it narrows the field down considerably

The beauty of it is that as well as those difficult words, the list includes those tricky little plurals and unusual verb forms that always seem to elude the brain at particularly vital moments What more could any malingerer want?



This is another excellent product for the Organiser II – a natural follow-up would be a synonym finder – and I can do nothing but loudly sing its praises

Essential for everyone who ever talked in the back of class

John Cook

Program *Concise Oxford Spelling Checker* **Micro** Psion Organiser II **Price** £29 95 **Supplier** Psion 18 Harcourt Street, London W1H 1DT

Make your move

Chess is one of the oldest games known, and one of the oldest computer games too A short while ago, CP Software released *3D Clock Chess* on the Amstrad PCW but now owners are spoilt for choice with the release of Amsoft s *Cyrus II Chess* and CDS's *Colussus 4*

So let it be said immediately that if you want a chess program for your PCW *Colossus* is the one to go for

Its range of features beats the other offerings hands down In addition to the usual features of multiple difficulty levels take-back moves set-up positions switch sides and replay *Colossus* has a host of others

Not the least of these attractions is the game library of some 40 games between different chess programs and David Levy's winning series against *Cray Blitz* which runs on a Cray supercomputer

There are also 18 problems (with solutions, if you need them) About the only feature *Colossus* is lacking is the ability to switch from 3D to 2D view of the board

Because of the way in which *Colossus* s difficulty levels are set up you can order the PCW to play an enormous range of difficulty levels

Cyrus on the other hand, has the basic features and not much more The 3D display is slightly prettier with animated moves and pieces shrinking as they move away from you

It also has the 2D option that *Colossus* lacks If like me, you prefer a plan view of the board this could tip the scales away from *Colossus*



Above. ***Colossus Chess 4*** **– Impressive range of features.**
Below: ***Cyrus II Chess*** **– has a 2D option too**



That said, *Colossus* is really the one to go for At the higher levels it will provide a tough opponent for good club players while on the lower levels it is a good tutorial program especially given its extensive library of games and problems

Peter Worlock

Program *Colossus Chess 4 0* **Micro** Amstrad PCW8256 **Price** £15 95 **Supplier** CDS Software, CDS House Beckett Road, Doncaster DN2 4AD

Program *Cyrus II Chess* **Micro** Amstrad PCW8256 **Price** £15 95 **Supplier** Amsoft, Victoria House PO Box 10, Sunderland SR1 3AV

Those long, hot days . . .

John Cook sifts through a cocktail of programs for the Amiga from Ariolasoft

Here in the *Popular* office, the recent weather was met with a massive wave of flushed apathy, as we sat slumped by our desks with barely enough energy to whimper encouragement to the YTS trainees who were getting to grips with the new technology by fanning the editorial staff with 5" floppies. Then this big box appeared in the office – our Amiga had finally arrived.

Whoops of joy filled the air – and even though the only member of staff 100% sure which end of the screwdriver to hold was on holiday, plugs were fitted and eventually the system was up and ready.

I promise you – we would have booted up the Basic straight away and been writing multi-tasking spreadsheets like a shot ... but the dog ate it. Then we lost the assembler. It was the final straw when the *Lattice C* package was found to be helping police with their enquiries in connection with the Brinks/Matt bullion robber. What else could we do? We had to play games.

Ariolasoft seems to be the only company who have got its act together with Amiga games software at the moment with five titles licensed from Electronic Arts – one of the premier software houses in the States – those titles being *Archon*, *Seven Cities of Gold*, *Skyfox*, *One-on-One* and *Arctic Fox*. All are conversions from other (supposedly inferior) machines with the exception of *Arctic Fox*, so we were very interested to see how they had made their transition onto 'state of the art' hardware.

We decided to rate each game in four categories: graphics, sound, gameplay (ie how good it is overall) plus the Amiga factor – how much we felt the program exploited the unique features of the beast ... or not.

Skyfox

A hit on the major formats last year, this shoot 'em up with a touch of strategy has converted well, being loud, brash and colourful. The story is standard ... you are the only person that can save the universe" fooder, but you can quite merrily blow the enemy tanks and jets away knowing you're doing Personkind a good turn. They're aliens.

Identical screen layout is retained – (this was a feature of all the conversions in fact) with the tri-sectioned out-of-the-cockpit view of the carnage. The action was fast – the transition between the high and low level combat much smoother and quicker than we recalled it being on the other machines. Graphics were at not much higher resolution that the Commodore and although the scrolling was good, it was far from effortless.

We didn't notice any obvious use of the Amiga's advanced talents, but all the same, for Amiga headbangers, this is as good as you can get over here at the moment. Play it with the volume up and the autofire on.

Sound	★★★★
Graphics	★★★
Gameplay	★★★★
Amiga Factor	★★★

Price £22.95
Technical requirements – 512K, Kickstart 1.1, Joystick recommended, 1 player only

Archon

Now here's a blast form the past. What can be said about Archon that hasn't ever been heard before? This truly is *the* classic blend of arcade reflexes and strategic thinking as the forces of light and dark fight it out on a 9 × 9 board of shifting hues. Think of it as chess with joysticks.

We all had a great time with this one (mainly as the forces of dark laying heavily into the good guys, it has to be said) but there were few obvious enhancements. A nice loading screen with some music had been added, but the graphics and sound were much the same as they ever were on the Atari and Commodore 64. But what could you possibly do to improve one of he all time greats? As a conversion, this is as faithful as they come.

Souhd	★★
Graphics	★★★
Gameplay	★★★★★
Amiga Factor	★★

Price £22.95
Technical Requirements – 256K, Kickstart 1.1, Joystick, 1 or 2 player

Seven Cities of Gold

Another great little animated strategy game – sadly not a mega-hit over here due to the fact it was disc based. One advantage with the Amiga, of course, is that all of the main program is kept in memory – and the little disc accessing there is, is somewhat faster than the clockwork 1541.

This one has you emulating Christopher Colombus, outfitting a fleet, setting sail for the New World to exploit the natives. It might not be ideologically sound – but it always got the big thumbs up in these quarters. Sadly, this, we felt, offered the most room for improvement on a bigger machine. Sampled sea noises perhaps, as you plough through the briney? Small elements of multi-tasking that would allow you to split your forces up and let each go on their respective ways? At least some better graphics and animation?

The title screen offers this – all hi-res and period music – but the disappointment is that this is a conversion job par excellence. Apart from the improved hardware performance, you might as well play it on the 64.

Sound	★★
Graphics	★★
Playability	★★★★
Amiga Factor	★

Price £22.95
Technical requirements – 256K, Kickstart 1.1, Joystick recommended, 1 Player

One on One

For those not familiar with basketball – *One on One* is a game where you play against a mate, both going for the same basket. If you're both good, you both tend to score each time and just end up getting thoroughly sweaty and horrible. It was like that on the Commodore, it was like that on the Spectrum – and it's a bit like that on the Amiga.

The program is a *One on One* computer simulation, with the two players being emulated on two 'stars' of the NBA in the States, Julius Erving and Larry Bird.

On the Spectrum the game is plain absurd – the Commodore 64 version was much better, even so, we always had our doubts about its playability. Many of the moves are preprogrammed into the computer, and much of the time, you just don't

the converters, it's sunk deep inside the game design

No, this is never going to be a classic game but what *has* been done during the



conversion is that someone has sat down and tried to make use of one of the Amiga's extra features – the capacity (due to the extra memory largely) to utilise sampled sounds

The basketball has a satisfying thunk when it bounces, there is a constant hum of the crowd – in the distance you can hear someone selling hot dogs This is cute Pity it can't lift up the game logic that little bit higher For basketball fans only Alternatively, play it with your eyes firmly shut.

Sound	*****
Graphics	***
Gamesplay	*
Amiga Factor	****

Price £22 95
Technical requirements 256K (extra features with 512K), Kickstart 1 1, Joystick recommended, 1 or 2 player

Artic Fox



Finally we come to the Jewel in the Crown The one specifically written for the Big A We loaded it up and expected something revolutionary Some of us where disappointed There were mumblings of – 'Battlezone rip-off' and other such slander People sloped off to do exciting things like filing Always a bad sign However some of us persevered past the first 10 seconds and Arctic Fox showed itself to be worthy of not little praise

You are controlling a 'super tank' – the only weapon that can zapp the aliens who are taking over Earth etc, etc – but instead of having their base somewhere warm and exotic like – say – Hawaii they've found themselves in the South Pole So much for the blather – there s no denying that the game does take advantages of the machine it s running on Lots of sampled tank sounds Large playing area and smart enemy opposition Filled vector-like graphics It abounds with neat touches Like the radar screen converting into a monitor from which you control the guided missiles – except the animated view is from the nosecone of the missile Gosh

Without going into the fine detail of the thing, this is an excellent Amiga game only let down by the relatively jerky main screen display Take a look if you can get your hands on a machine

Sounds	*****
Graphics	****
Amiga Factor	*****
Playability	*

Price £22 95

Technical requirements – 512K Kickstart 1 1, Joystick recommended 1 player

Seven Cities of Gold (above) exploring the New World

Archon (below) Light versus dark (dark in the green strip).



Artic Fox (below left) combat on the Arctic plain

Sky Fox (below right) The aliens taking it like a man.

Conclusions

This is an excellent selection of games of the Amiga – but there again they were excellent (for the most part) on the orginals The fact that the four conversions made so little effort to extend the performance of the software in line with the hardware advance suggests that time was probably a limitation – that is they had to be ready for the machine US launch. Shame

But at least *Artic Fox* gives us a glimpse of the future as far as what the machine is capable of talked to nicely enough for long enough Meanwhile if you had to pawn your old system to get this one – Ariolasoft present you with the chance to play them still – with the addition of a few trimmings

And if it doesn t rain soon, we ll be going monthly Promise

Tricky terrorists dealings

Terrorists have hijacked 'a vehicle', and you as head of the conveniently named Hijack Department must defeat them inside their deadline

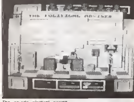
You have three options You can raise money to pay them off, raise the political power to get them to give in, or raise a large military force to scare them into surrendering *Hijack* has no option to turn Tripoli into a greasy stain on the edge of the Mediterranean, indicating that short sharp shocks are now out of fashion

In the game you are a figure using joystick or keyboard to move through a complex of offices As your increasingly frantic search progresses you run into ten other characters ranging from the president down to the financial officer On encountering a character joystick up or down moves you through the character icons at the top of the screen and pressing fire gives you a pull-down menu with a series of options eg, request political support raise funds and issue a press statement

Objects that can be picked up appear at the bottom of the screen alongside displays of your current military political and financial power

You use all this raw material to gather information about the hijackers keep on top of the power struggles in the division, build up money military or political support to the point where the hijackers can be tackled, and not get fired

Electric Dreams bills the game as a combination of arcade, strategy and simulation



The arcade element seems pretty sketchy to me but overall it's good value and should appeal to anyone who wants to use their head for things other than banging

John Lettice

Program *Hijack* **Micro** Spectrum 48/128 **Price** £9 99 **Supplier** Electric Dreams Software, 31 Carlton Cresent, Southampton SQ1 2EW

Cosmic Ping Pong

The old ideas are often the best and this one *Room Ten* resurrects the original foundation of the video game boom – *Ping Pong* But don't throw your hands up in despair, it's not a case of two lines and a blip battling it out on a bare screen *Room Ten* is in fact 3-D super cosmic ping pong CRL's idea of a 25th Century zero-gravity recreation

Set in the recreation station of the giant interstellar conglomerate GalCorp *Room Ten* (lousy title if you ask me) features a split screen effect showing in vector graphics the views from each end of the playing chamber Using the joystck or control keys, the player(s) move transparent rectangular force shields – the bats – around the field of view in order to hit the solid energy 'ball' To the right of the screen is the score tally and an indication of which player is to serve, and that's all there is to it. Written by Pete Cooke of *Tau Ceti* fame *Room Ten* is a *tour de force* of 3-D animation, the ball bounces realistically around the chamber, and there's a great deal of skill involved in making angled shots by catching the ball with the corner of your bat then anticipating your opponent's reaction

Sound effects are good too and to maintain the joke the instructions are given in English, French German Cetan and Hydran – try making any sense of the last two!

Played at full speed *Room Ten* is very impressive and challenging With screen colour options and an excellent intro screen It's well worth a look if your taste runs to games of skill rather than mindless destruction

Duncan Evans

Program *Room Ten* **Micro** Amstrad CPCs **Price** 7 95 **Supplier** CRL 9 King's Yard Carpenter's Road, London E15

Microtech's Crimble is confusing

I've never been to Ossett but my guess it's something in the water Or maybe the authors were dropped on their heads as children Could it be strange and suspicious substances?

Happy *Crimble*? Possibly, Frustrating *Crimble*? I'm pretty sure What flavour of *Crimble*? Raspberry crimble, I think Would Lewis Carroll have liked *Crimble*? Would you? Did I? Did its authors?

I am very grateful to MicroTech for the hint sheet.

Without it I doubt I'd have guessed how this adventure (if that's what it is) worked. For a *Quilled* product it sure stands the formula on its head, inside out, if you understand. In fact it stands adventuring on its head. The text, the authors tell me is irrelevant. So is the owner of the vest in the first location. It's an elephant's vest.

This is supposedly satirical, supposedly surreal, supposedly illustrated (I found one illustration; its subject escaped me). Maybe if Dali took up programming something like this would result. But I'm not sure that I didn't suppose the result merely sixth form in its soft politics and (en)forced wackiness. The borderline between genius and madness is narrow. This game should be played wearing a straitjacket at the very least – though how you then type in your answers currently escapes me.

John Minson

Program *Crimble* **Micro** Spectrum 48K **Price** £7.25 **Supplier** MicroTech, 86 Whitely Spring Crescent, Ossett, West Yorkshire WF5 0RF

Graham Gooch plays well in test

Graham Gooch's *Test Cricket* was a very appealing game on the Commodore 64. While Audiogenic has certainly taken its time with conversions, the Amstrad version is now out, and the good news is that the game looks much the same.

The startling green pitch of the 64 version looks even more lush on the Amstrad, the players are just as chunky and blocky, and the play centres again purely at the wicket and the boundary.

The appeal of this title rests largely in the variety of discernible bowling techniques and strokes played and the smooth animation. The figures are large (and thus inevitably blocky) rather than matchstick men and you can see what's going on.

You are given an England v Australia scenario, and a pool of twenty players to choose from. Time to emerge from your dust covers, down a pink gin or two and select the team. If you don't like the look of Botham or any of his cronies, you can also add your own players.

Next you can select whether to play a one day match, full test, or limited over (40, 55 or 60) match.

The play has two modes: simulation mode is rather like watching it on the television, although you do have some control over the tactics England adopts. In arcade mode, you actually get to play the shots, and bowl the overs via the joystick.

Like everything to do with cricket, it's either fascinating, or the attraction is quite incomprehensible. But if you liked the look of last year's Commodore version, rest assured you won't be disappointed.



Christina Erskine

Program *Graham Gooch's Test Cricket* **Micro** Amstrad CPCs **Price** £9.95 tape £14.95 disc **Supplier** Audiogenic Software, PO Box 88, Reading, Berkshire

Leader Board lands a winner

There are some software companies, notably in the US, who are constantly extending the graphics frontiers of the Commodore 64.

Epyx is one that springs to mind, with its *Summer* and *Winter Games* series. Another is Access and its latest is another sports simulation, *Leader Board*.

This golf game pits up to four players against each other and four of the toughest golf courses ever designed. There are no trees, no bunkers, no rough. What there is is a number of islands.

Occasionally you get an easy hole where the tee and the pin are on the same island. More often you'll find they are one or more islands apart.

If this was a real course, no-one would play it since you stand to lose about 100 balls in the water the first time you play. One member of the *Popular* staff posted a first-round score of 164 over par.

But since it's a computer game, this only adds to the fun. Once you learn to control hook and slice, the game plays very realistically, with some clever animation of your golfer and realistic 3D flight of the ball.

All the other features you'd expect to find are here: full club selection, varied power on the swing, wind effects and sloping greens.

Compared to Ariolasoft's *Golf Construction Set*, *Leader Board* has many strengths and few weaknesses. *Leader Board* plays a better game and is graphically superior. However I prefer *Golf Construction Set's* more realistic choice of courses and the ability to design your own courses is a bonus.

On the whole, though, *Leader Board* is the winner.

Peter Worlock

Program *Leader Board* **Micro** Commodore 128/64 **Price** £9.95 tape £14.95 disc **Supplier** US Gold, Unit 10, The Parkway Industrial Centre, Heneage Street, Birmingham B7 4LY

Julia's death remains a mystery

Will *Mortville Manor* by French company Pyramide for the QL be destined to join the ranks of the adventure classics? Well no. The premise of the game is that you, as Jerome Lange, ace investigator, having received a plea for help from an old friend, rush round to Mortville Manor to see what goes. Unfortunately, by the time you get there you find that it's your old friend Julia who's gone. Was it old age, or was it murder? The graphics, though pretty, are horribly slow in being drawn, taking 20 to 55 seconds. What about the text, you cry? Well there's a real treat in store here: just sit back and soak up the atmosphere in the one to two lines of prose. Eat your heart out, Infocom.

What is rapidly becoming an endurance contest continues when you start typing commands because you're only allowed to use verbs. An arrow appears on the screen and you slowly move it over the object you wish the verb to apply to. In practice this is unbelievably tedious.

Plodding from location to location, I at last encountered something, Max the butler, to be precise. The adrenalin was really flowing as the program went into discussion mode: what riveting information would the butler reveal? Old Julia was killed because she discovered passion and scandal lurking behind the scenes? No such luck. 'Pardon' and, 'That's none of your concern' were the most I could get out of him.

There may well be a good game lurking in there somewhere but, like Julia, you could die from old age before you find it.

Duncan Evans

Program *Mortville Manor* **Micro** QL **Price** £19.95 **Supplier** Reo Promotions, 28 Waverley Grove, London N3 3PX.

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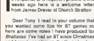
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Notes from a Brattacas notebook

Tony Kendle passes on the tips, plus some help with US Gold's PSI-5 Trading Company



In response to a request I printed a few weeks ago here is a welcome letter from James Drevar of Church Stratton

Dear Tony I read in your column that you wanted some tips for ST games so here are some notes I have produced for *Brattacas* I've had an ST since Christmas and have been playing *Brattacas* in glorious monochrome with the TOS operating system still on disc This may explain some of the strange goings on I ve experienced while playing

The overall objective of the game is to escape via the teleport in the arrivals department carrying the correct evidence to prove your innocence Proving your innocence involves killing (sic) or otherwise tricking most of the population of *Brattacas*

' How to go about it First go to Joe s Bar reveal yourself as Kyne and he will tell you to find Skweel Skweel is the snitch who wears a gas mask. To bribe him you must find *all* of the gold bags on *Brattacas* to give these to him He will reward you with the final piece of evidence

'**Evidence**: The two most important pieces of evidence can be found in Commander Stopp's office and in Kol Worpt s den Take both of these to the Arrival s teleport to get a The End message Not very exciting I presume you must select some more evidence to complete the game and I also guess you get a pretty picture – once I got a few lines of graphics when I took a certain (but alas forgotten) combination of evidence

'**The Characters:** Droids should be killed with an electro bomb by leaving one in their paths You can carry a pass to avoid them also but it is time consuming to repeatedly answer their questions

Sursaucrats – It is worth killing the droid despatcher as this will neutralise the droids Before attempting the journey to Stopp s office it may be worth killing the police Despatcher and sending the police to the droid room where they are well out of the way

Henchman – There is one very useful henchman (recognisable for his white trousers) who knows who you are and will take to meet Kol Worpt This charming character will ask you to work for him and if you agree you must prove yourself by killing a cop There is little point in trying to kill him, he does no harm to you and the same goes for Stopo

Switches You can leave your pursurers behind in Kol Worpt s den by switching the lifts off as they follow you Switch off the cameras in Cooms central if you intend to do some dirty work in a room with camera protection

Control Always use the mouse It may seem hard at first but in the long run it is much easier than keyboard or joystick

"PSI-5 has a standard of programming that is exceptional"

My overall opinion is that as a demonstration of the ST s power *Brattacas* is great As a game it is fundamentally flawed by design faults and bugs The game s speed is undoubtedly impressive but it does slow down to a crawl with too much on screen – even despite the 16 bit processor I think Psygnosis was rather too ambitious with the program, but as the first real games release for the ST it is good stuff

'I hope this is of use as I haven t seen any hints for ST games printed before

Thanks a lot James for kicking off the ST tips in the column, let's hope we have lots more to come As you rightly point out *Brattacas* was a very rushed release and is renowned for its small bugs but since that time the ST has had some excellent new releases *Popular* has covered a few of these recently in the special games features and I know that companies such as Rainbird are working on some stats of the art releases that may well put Atari back on top as the name synonymous with the very best games computers (even if the company would hate to have its machine described as that)

The recent release of the *PSI-5 Trading Company* is possibly the strongest program that US Gold have released in a very long time It is a superbly animated game that on paper has a plot rather similar to Elite crossed with the ill-fated *Great Space Race* Don t let that put you off though *PSI-5* has an atmosphere and a humorous quality that is unique and the standard of the programming is exceptional Peter Avons of Bampton has provided us with these tips for the pame

The best crew to pick on the missions is Bons – weaponry Yens – navigation Mike – Scanning, Craven – Engineering, Repairs – T3XR9

The mission Step 1 – selectengineering and priorities the ship's power classes tp – Priority 1 – shields priority 2 – engines priority 3 – weapons priority 4 – charge shield batteries priority 5 – scanners priority 6 – charge emergency battery

Step 1 – select Scanning and get display

Step 3 – select *Navigation* and accelerate to speed 5

Step 4 – when the ship comes up on display use accelerate to stop your craft.

Step 5 – select *Weapons* and fire at will at the ship

Step 6 – If a lot of damage is incurred during the attack select *Repair* and get some robots to repair the most important things such as *Weapons Shields* etc

Step 7 – After destroying the ships select *Repairs* and fix any remaining damage

Step 8 – after all the repairs are complete repeat steps two to eight

Regular readers of the column will know that one of my favourite games of all time is the gripping *Halls of the Things* from design Design and I was surprised to find that some people still don t know that a version of the game together with Space Invaders comes supplied free with the zappy *Forbidden Planet Halls* on the Amstrad tape/disc also has a user definable front end that lets you adapt the game for a green screen alter the mazes and even select faster and more vicious monsters There is also an option to re-define the keys but this seems bugged as it resets to the defaults after ever game – but it doesn t spoil an excellent value purchase



Mysteries under the sea and on the high waves

Tony Bridge give hints and tips for those stuck in The Play-Off, Seabase Delta, Seas of Blood and Lord of the Rings

New owners of the Atari disc drive will be able to play *The Play Off* a text adventure from Bignose Software which forms part of the free package supplied with the machine It is also available for the Commodore Spectrum, BBC and Amstrad machines, though I haven't seen it in these versions

Some help is needed by readers first, how to climb the fence 41 18 50 22 4 How do you get past the dog? 41 16 50 45 And the guard? 54, 18, then, if you're still having trouble with the guard 59 18, 10 39 36 20 To stop the alarm 41 56 26 and to stop blacking out New Jersey 48 8 36 6

When you come across the newstand, get a newspaper and you'll find that this will come in handy in conjunction with the treacle, found later in the kitchenette's cupboard In the vault, don't forget that time weights for no man!

From Capone's America, to a futuristic seabed environment in *Seabase Delta* Torrance and Liddle's Firebird adventure is one of my favourites at the moment, being an excellent example of good interlocking puzzles One of these caused me some aggravation and it comes early on in the game – if you're also having trouble sliding around in the food farm while trying to get to the table then 59, 14 38 36 7 But thanks to Firebird, I've received some notes left by a successful, very poetic adventurer

In the Tiger-Fish bay, Enter the numbers that you have obtained from the lift sign seen and the temperature gained if the order is correct, the missile zooms fast towards the wreck and splits the mast Then After the tiger has split the master, use the wooden length at last to lever the cannon and reveal all, including a rusty old cannon ball One item here will give you scope to see deep down a shaft I hope Pull the nails with dental gear, and take the plank, it's no use here! At the Second Lift Open the panel with a slimy green key and examine the 'scope down the shaft you'll see a small shining disc you can get with some help from a line and a speaker magnet

Now in the Rest Room, Insert the disc and examine the screen push and pull the joystick seen Watch the clown and copy him when on the seesaw near the warhead rim"

Up to the surface we go for the next scenario, Adventure International's *Seas of Blood* When I first encountered this swashbuckler I found it all a bit irksome having to type in *Sail South* time after time to get anywhere but thanks to John Wilson, I now have a pretty good plan of how to get between ports Not all of them are worth visiting anyway here's a list of those that you should ignore as they are either of no use or very unfriendly 43 12, 49 23 52, 28 60 13

Actually 28 could be visited if desperately in need of food Let's have a look at what must be done at just a couple of the locations including the source of food

At the wreck (*Sail South* four times from the rivers of the dead) 57, 24 29 44 17 61, 62 19, 46 (ignore the crack here!) 4 37, 62 3, 19 35 37 40 2, 19 47 30, 30 4 4 24 29 34, 47 19, 11 42 30

And at 29 42 5 head 37 to the farm when asked 15 53 42, 9 When asked riddle type 25 10, 31 42 51 64 63 42 51 32, 32 30 42 35

Our final problem this week is one that is fast becoming a latter-day goblin's dungeon – how to use the elfstones to kill the black riders in *Lord of the Rings* David Edgar has had the patience to work it all out and has sent me a solution along with a couple of adventures of his own, which I



ADVENTURE HELPLINE

Quest (Hewson) on Spectrum I have unlocked the castle door with the long key but I cannot get it open Help! A Bridge, Lambourne Nursery Drive, Boreham, Chelmsford Essex CM3 3AM

Lord of the Rings, part 1 on Spectrum. I have found and used four elfstones Are there more elfstones to be found, and if so where? Brian Diggle, 12 West Park Avenue, Leeds, West Yorkshire LS8 2HG

Sorcerer of Claymorgue Castle on Spectrum. How do I get into the dungeon airshaft? Val Douglas, 105 Gladstone Road, South Willesborough, Ashford, Kent TN24 0DE.

Mordon's Quest on Spectrum I am stuck in Romans and Future city Val Douglas 105 Gladstone Road South Willesborough Ashford, Kent TN24 0DE.

Magic Mountain on Spectrum. How do I light the lamp? Val Douglas 105 Gladstone Road South Willesborough Ashford Kent TN24 0DE.

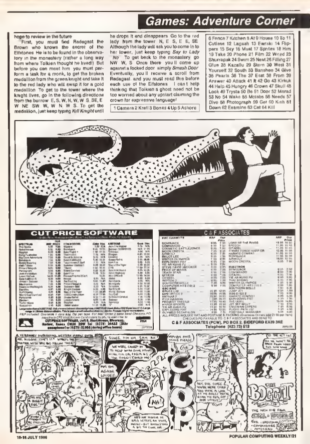
Hitch Hikers Guide to the Galaxy on Atari How do I confuse the upper-half-of-the-room cleaning robot and get the babel fish? Philip Farris 2 Wellington Road, Porthleven, Helston, Cornwall TR13 9AD

Marie Celeste on Spectrum. Any help would be welcome Mark W Strain 91 Langmuirhead Road, Auchinloch, Kirkintilloch, Glasgow G66 5DJ

Robin of Sherwood on Spectrum. Where can you bribe the thief and also where can you find the crest? Mark W Strain 91 Langmuirhead Road, Auchinloch, Kirkintilloch, Glasgow G66 5DJ

Heroes of Karn on Amstrad. In the long barrow how do you get the money? How do you escape from the dungeon? Paul Brown, 19 Wren Road Sidcup, Kent DA14 4LY

Lord of the Rings on Spectrum. How do I kill all three black riders? When I kill one the other fixes me with his gaze and steals my ring. David Edgar, 1 High Parksail, Erskine Scotland PA8 7HY



hope to review in the future

First, you must find Radegast the Brown who knows the secret of the Elfstones He is to be found in the observatory in the monastery (rather a long way from where Tolkien thought he lived!) But before you can meet him you must perform a task for a monk, to get the broken medallion from the green knight and take it to the red lady who will swap it for a gold medallion To get to the tower where the knight lives, go in the following directions from the burrow E, S, W, N, W, W S SE, E W NE SW W, W N W S To get the medallion, just keep typing *Kill Knight* until he drops it and disappears Go to the red lady from the tower N, E S, E E, SE Although the lady will ask you to come in to her tower, just keep typing *Say to Lady No* To get back to the monastery go NW W, S Once there you'll come up against a locked door simply *Smash Door* Eventually, you'll receive a scroll from Radagast and you must read this before each use of the Elfstones I can't help thinking that Tolkien's ghost need not be too worried about any upstart claiming the crown for expressive language!

1 Camera 2 Krell 3 Bones 4 Up 5 Ashore 6 Fence 7 Kitchen 8 At 9 House 10 To 11 Cutlass 12 Lagash 13 Ewraki 14 Flippers 15 Say 16 Must 17 Sprites 18 Him 19 Take 20 Phone 21 Film 22 Wired 23 Shurrapak 24 Swim 25 Next 26 Filling 27 Glue 28 Kazallu 29 Stern 30 West 31 Yourself 32 South 33 Banshee 34 Give 35 Pearls 36 The 37 East 38 From 39 Answer 40 Attack 41 It 42 Go 43 Kirkuk 44 Help 45 Hungry 46 Crown 47 Skull 48 Look 49 Trysta 50 Be 51 Door 52 Marad 53 No 54 Wake 55 Mctabs 56 Needs 57 Dive 58 Photograph 59 Get 60 Kish 61 Down 62 Examine 63 Cat 64 Kill

Fame and fortune from PSS

In the distant past from a mysterious land came word of an heroic quest (Well, it seems like a long time ago, and Coventry is pretty strange)

The quest was *Swords and Sorcery* from PSS

Later this year the quest will be resumed – but for the moment a hunt of a different kind is on PSS wants *Popular*'s readers to think up a name for the follow-up

In order to do that, of course you need to know something about the game

The plot

It takes place in Castle Magroth and would-be heroes will have to complete eight quests before undertaking the final conflict

Among the little chores in store are princess-rescuing hide and seek for a chalice and a crown a bit of god-banishing not to mention to purging of the foul servants

Not something to be knocked off between mowing the lawn and washing the car

As you're going about this business 250 committed doers of evil will be attempting to thwart you and in addition to keeping one eye open for them you'll need to keep the other wary for the pits, shifting walls sloping passages and poisoned traps

The competition

So, all you have to do is think of a suitable title for the game It should reflect the nature of the game perhaps you'll concentrate on the required valour, perhaps on the undoubted mayhem that will ensue possibly something that reflects the unceasing battle between light and dark At any rate, come up with something original

The prizes

The prizes for the winner are worth a bit of effort – your suggestion will become the official title for the sequel to *Swords and Sorcery* you get your name on the packaging (fame) a free copy of the game and a framed colour print of the artwork (fortune).

The 25 runners-up will receive a free copy of the game too

It will be initially available on the Spectrum in September with Amstrad and Commodore 64 versions appearing before Christmas

To enter simply write your title on a postcard and send it to PSS Competition, *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2H 7PP

Conditions

Entries should reach us no later than Friday July 25 to be eligible for inclusion in the judging

All entries will be considered by the judges and Gary Mays of PSS will make the final decision as to the main prize winner and the 25 runners-up

The judges decision is final and no correspondence can be entered into

All normal competition rules apply

Holograms and 8256 Hobbits

Melbourne House has been busy repackaging and converting its classic adventure *The Hobbit*. As well as the Spectrum, BBC Commodore Amstrad CPCs and MSX *The Hobbit* is now also available on the PCW8256/8512.

Its follow-up, *Lord of the Rings* has also just been converted to the PCW8256/8512, and *Popular Computing Weekly* is giving away 10 copies of either game for the PCW machines

As well as the ten games one outright winner will get a special prize – a Melbourne House hologram picture

All you have to do is answer the following questions on *The Hobbit* and *Lord of the Rings*

1 Bilbo and Frodo shared a birthday What date was it?
2 Who was an evil thing in spider-form from whom no fly escaped?
3 In *The Hobbit* what was the name of the dragon who had stolen Thorn's family's treasure?
4 Under what name did Frodo Pippin and Merry first meet Aragorn son of Arathorn?
5 What did Bilbo Baggins intend to call his memoirs?

Send your entries using the coupon below, to Tolkien competition *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2H 7PP

Your entries must reach us by Thursday, July 31 to be eligible for the prize draw

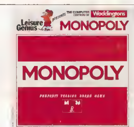
The first correct entry selected at random will win the special hologram plus either *The Hobbit* or *Lord of the Rings*, the next nine will receive a copy of the game

No correspondence can be entered into regarding the competition and all normal competition rules apply

Name
Address

My answers are.
1
2
3
4
5

I would like *The Hobbit* ☐
***Lord of the Rings* ☐**
for the PCW8256/8512.







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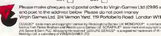
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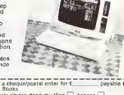
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AMSTRAD CPCs and PCWs

INSIDE



The name on the lips of every micro user these days is Amstrad While Commodore and Atari struggle to make up for previous losses, and Acorn flounder, Amstrad calmly buys out Sinclair and consolidates an already formidable market position

The secret is to squeeze the best out of old technology attractively bundled and priced, rather than trying to compete at the cutting edge of the risky high-tech market. With the CPC computers, now regarded largely as games machines, and the newer PCW series, Amstrad is enjoying the best of both worlds.

Whether your interest is purely in games, or in serious applications, Amstrad has plenty to offer As you'll read in this special supplement, there are now games to play on the PCW's and lots of serious stuff for the CPC's too – so take your choice and enjoy the Amstrad! ◄

Show business

SERIOUS SOFTWARE DOMINATED THE RECENT AMSTRAD SHOW CHRIS JENKINS SUMS IT ALL UP

Considering the dominant position which Amstrad has achieved in the small computer field, the 14,000 attendance at the Database Amstrad Computer Show sounds like a disappointing result. However, the visitors made up in enthusiasm what they lacked in numbers, and overall the Show was judged a success by exhibitors and public alike

The main point of interest was to have been Amstrad's PC-compatible machine, but the rumours of its launch had faded by the time of the Show, and it now looks likely that it will be some time before the official launch

MML Software's cut-price cut-out

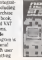
However, alternatives were available. **MML Software** had warned that a 'cut-price PCW 8256 lookalike' would be launched – and that 5000 were ready for shipment In the event, the cardboard self-assembly machine – labelled "NOT the Amstrad PCW 8256" – was one of the hits of the Show With only a sharp pair of scissors and a little patience you could assemble your own machine, complete with monitor, keyboard, printer, floppy disks and documents. MML's more serious contributions include **Amstrad CP/M Plus**, a weighty tome dealing with the history operations, programming, availability and implementation of CP/M including popular software packages such as Multiplan and Wordstar

On the subject of CP/M **New Star**'s latest software catalogue including the **NewWord** package, **Pocket Wordstar** and the database systems **Cardbox** and **Magic Filer** Also included in the NewStar catalogue is the **Ambyte** games-on-disk service, an inexpensive way to get customised cassette games compilation transferred to disk – all above board! – at reasonable prices.

By far the most popular feature of the Show – to the disappointment of games players – was the wide selection of PCW business software. **Caxton**'s **Cardbox** indexing system, **Condor 1** database, **Brainstorm** ideas processor and **Smart Key** keyboard customiser attracted interested crowds as did **Saxon**'s **Microfile** and **Microword** programs.

Arnor's **Prospell** provided the solution to Locoscript users – and users of all other known PCW word processors – with text checking problems. The editable 32000-word dictionary and 2000 wpm checking speed makes Prospell a bargain at £29 95 There's a CPC version too

Sandpiper's accounts package, created specifically for the 8256, is an integrated system including sales and purchase ledger, cash book, invoicing and VAT return sections, while the **File Manager** program is a fully relational database with user screen formatting





and record lengths of up to 400 characters, with field lengths of up to 255 characters.

Micro Simplex's **Simplex D**-based cash book system, **First Software**'s **DBase II** and **Sagesoft**'s **Retrieve** and **Magic Filer** were among the many serious software packages which confirmed the 8256/8512 as the most important small business machine on the market.

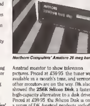
For users who are convinced of the machine's power but unsure of their ability to operate it, a whole host of companies were offering training courses and guide books. The books are examined in more detail elsewhere in this supplement; the training courses included the **Iankey** typing tutorials from **Iansyst** PCW word processor tuition courses from **Crayfield**, **CEEA's** computer training courses, and the typing tutor program from **Computer One**

On the utilities front, **Hisoft**'s **Pascal**, **TurobBasic**, **C**, **Torch CP/M** tutorial, and **Devpac** assembler/debugger, **Pride Utilities' Fido** disk organiser **Printer Pac** screen dumper **Super Sprite** animator and **Script** printer font definer and several tape-to-disk transfer systems from **Mirage**, **Romantic Robot**, Evesham Micros, and others, continued to make the Amstrad machines more flexible and powerful

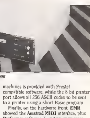
Comms software also made a good showing, with **Modem House's Prestel** system, which supports almost all modems but is specially designed for the Voyager II, and the **Telecom Gold Microlink** systems on display This system offers telex and electronic mail services, closed user groups and bulletin boards **Cirkit**'s Prestel link hardware for the CPC's complete with modem, interface and software was on show, displaying demonstration pages from Micronet 800

On the subject of hardware, Cirkit also showed as sideways ROM expansion card giving a maximum of 64K extra memory to the CPC's, plus parallel centronics and serial printer interface cards.

DK'Tronics showed a fascinating innovation – a TV tuner which allows your







Northern Computers' Amstore 20 meg hard disk unit

Amstrad monitor to show television pictures. Priced at £59 95 the tuner will be available in a month's time, and versions for other monitors are on the way. DK also showed the **256K Silicon Disk**, a faster, high-capacity alternative to a disk drive. Priced at £99 95 the Silicon Disk is one of a series of DK Amstrad products including speech synths, light pens, and memory expansion packs.

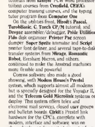
For more ambitious users, the **Amstore** 20Mbyte hard disk unit, which can act as a store and file server for the **Amstrad Network**, was on show on the **Northern Computers** stand The Amstore also contains a parallel printer output with spooling, a clock and calendar with battery back-up, and a complete multi user networking system Together with **Amstelex**, the telex management system, the network allows the CPC or PCW machines to become part of a fully professional office automation system.

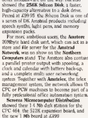
Screens Microcomputer Distribution showed their 1 4 Mb disk station for the CPC 464 the 512K expansion board, and the new 1 Mb board at £199

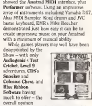
KDS's RS232 interface for the CPC machines is provided with Prestel compatible software, while the 8 bit printer port allows all 256 ASCII codes to be sent to a printer using a short Basic program

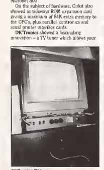
Finally, on the hardware front **EMR** showed the **Amstrad MIDI** interface, plus **Performer** software. Using an impressive array of instruments including Yamaha DX7, Akai MIDI Sampler Korg drums and JVC home keyboard, EMR's Mike Beecher demonstrated just how easy it can be to create impressive music on your Amstrad with a minimum of musical ability

While games players may well have been disappointed by the Show – with only **Audiogenic**'s **Test Cricket**, **Level 9** adventures, **CDS's Snooker** and **Colossus Chess**, and **Blue Ribbon Software** having much to offer – the overall opinion seems to have been that it was successful Now it remains to be seen whether Amstrad can also dominate the games market once the Amstrad Sinclair machines appear later this year.◄







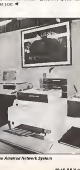


DK'Tronics' TV tuner



EMR's MIDI music system

AMSTRAD COMPUTER SHOW



The Amstrad Network System

When the press use such words as 'Phenomenal', 'Outstanding', 'Ideal' and 'Worth Every Penny', they've obviously discovered something rather special.

But when that something special turns out to be a product in which they are already expert, then it must be something very special indeed.

The object of their enthusiasm is AMX Pagemaker – a revolutionary software program that will produce newspapers, posters, leaflets, notices and hand-outs – in fact anything where text and graphics are required, to an extraordinary professional standard.

It's a complete graphics design system and word processor rolled into one. It has real time graphics with fast continuous scrolling up and down an A4 page and uses Mode 2, the highest graphics resolution on the Amstrad CPC computers.

READ ALL ABOUT IT

You can type directly onto the screen, with any of the 16 typefaces supplied or design your own, alternatively, you can load in any ASCII file or a word processor file, from programs such as Tasword, Amsword, Maxam, or Protext, with fully automatic on-screen text formatting during loading.

Word processing facilities such as centering, ragged right and literal justification are all available. There is full pixel resolution control over text and graphics. Also included is a micro spacing facility.

WORKS WITH KEYBOARD JOYSTICK OR MOUSE

The program that's making front page news.

EXTRA, EXTRA.

There are outstanding facilities for drawing, spraying and painting, using either the patterns supplied, or your own pattern designs. A screen conversion routine is included allowing screens created in Mode I and O to be used within the Pagemaker. The cut and paste facilities include copying, moving, rotating, stretching and a fantastic zoom is also available.

The previewer allows you to view three A4 pages at any time before work is output to a wide range of dot matrix printers including, Amstrad DMP 1000/2000, Epson FX/RX/LX/LQ, Canon PW-1080, Kaga KP810, Mannesman Tally MT-80+, Seikosha SP 1000A, Star Delta, Star SG10 and any that are compatible with the above.

The AMX Pagemaker requires, a) Amstrad CPC6128 or b) Amstrad CPC664+64K Minimum add-on Ram or c) Amstrad CPC464+64K Minimum add-on Ram + disc drive, DK'tronics Ram boards or compatible.

Let's leave the last word to the press.

"Pagemaker is phenomenal – it lends itself to creating anything where text and graphics are involved – notices, posters, leaflets, hand-outs, newsheets. Packages like this have been the province of the 16-bit micros until now, this product is worth every penny of £49.95."

AMX MAGAZINE MAKER– WE THOUGHT IT WAS ABOUT TIME WE PUT YOU IN THE PICTURE

A combination of AMX Pagemaker and the AMX video digitiser. Using any video that provides a composite signal and the digitiser, images from a camera or TV can be converted into a graphic screen on the Amstrad Micro. They can then be used within AMX Pagemaker to illustrate magazines or newsletters. The digitiser connects into the expansion port and scans a complete picture in only 5 seconds.

A special print dump routine is also included with the driver programs. This is specially designed to produce fast, correctly proportioned pictures, with reduced 'Contouring' resulting in a very accurate reproduction of the image.

Features offered by this package include:

- Dot resolution 256 by 256
- Standard 1 volt composite video input
- 10 bit A/D convertor gives 32 grey scale output
- Low IC count
- Contrast and brightness control
- No external power unit required

These packages are your opportunity to join the desktop publishing revolution.

The AMX Pagemaker costs only £49.95, software is supplied on 3" disc and a fully illustrated operating manual. AMX Digitiser only £89.95 including software on 3" disc, and AMX Magazine Maker (including AMX Pagemaker and AMX Digitiser) at only £129.95.

These superb packages are available from all good computer dealers or direct using the Freepost order form below.

Educational Computing, January 1986.

PLEASE RUSH ME POST FREE THE FOLLOWING AMX PACKAGES

Quantity ______ AMX PAGEMAKER @ £49.95 each

______ AMX DIGITISER @ £89.95 each

______ AMX MAGAZINE MAKER @ £129.95 each

ALL INCLUSIVE OF VAT AND P&P

I ENCLOSE CHEQUE/POSTAL ORDER FOR £______

OR DEBIT MY ACCESS ☐ or VISA ☐

(tick as appropriate) CARD NO.

EXPIRY DATE ______

SIGNATURE ______

NAME ______

ADDRESS ______

POSTCODE ______

AMX PAGEMAKER

SEND TO: ADVANCED MEMORY SYSTEMS LTD. FREEPOST, WARRINGTON WA4 1BR

☎ FOR INSTANT ACCESS OR VISA ORDERS RING 0925-413501/2/3

Play away

PLENTY OF CONVERSIONS AND SOME NEW TITLES TOO – ALL REVIEWED BY AMSTRAD EXPERT STAN BYERMANN

MAX HEADROOM is certainly one for fans of the computer-generated video DJ, and should also appeal to lovers of complex strategies.

Basically a maze game with elements of pattern-matching, the game casts you in the role of investigative reporter Edison Carter. On your self-appointed mission to rescue the Max Headroom Personality Module from the skyscraper headquarters of TV Network 23, you must discover security codes allowing you access to each floor, then avoid the robot guards as you search each floor for clues.

There's an icon system which allows you to choose to move around the floor, check which floors you have completed, take a rest, try to gain control of the lifts, examine the security terminals or check the video cameras to see if you are being pursued by live or robotic security guards.

A similar trick to controlling the lifts, involving illuminating LED's in the correct pattern.

If you successfully penetrate the security measures find the executive codes and retrieve the Max Headroom Personality Module, you are rewarded by an appearance of old M-M-M-M-Max himself.

Unfortunately, although the game features reasonably sophisticated music and animation, there isn't enough variation to hold the attention of any but the most persistent players – so many of us may be denied the pleasure of meeting Max after all ◀



To gain control of a floor you must complete a fast-moving pattern-matching exercise, by which you use the joystick to match the series of notes played by the security computer, only in reverse. There's a

Game *Max Headroom* **Supplier** Quicksilva **Micro** CPC 464/6128 **Price** £9.95

GLASS is a visually impressive shoot-'em-up which soon palls when you realise that the plot is minimal. Described as a "ground-level alien strike simulator", Glass is in fact devoid of any real strategy or simulation elements, but simply requires you to blast the hell out of anything which moves on screen.

Since the action takes place in three alien emplacements, there is at least a variety of targets. First you have to destroy robot guards, then alien tanks, then battle cruisers, and finally you must fly between towerblocks to penetrate to the next city, which is very much the same thing again.

Although GLASS is very colourful and well animated, the sheer lack of subtlety in the gameplay makes it something of a disappointment. Not even the most undiscriminating arcade fan could get much out of this.◀

Game *GLASS* **Supplier** Quicksilva **Micro** CPC 464/6128 **Price** £8.95/

CORE is another one which doesn't quite live up to its title. It's more like "Uh yeah" In this one, you play fearless space pilot Andy Angelo whose mission is to explore a ruined asteroid base to discover the secret of its destruction

In order to solve the puzzle you must retrieve all the missing elements of a bio-computer and return them to your ship for analysis

The caverns through which you move have a grid pattern of 16 × 16 cells but there is no common interconnection system You have to map your way through the complex, solving problems as you go For instance you need a metal detector to find some objects – but the detector itself is buried. Also, there are lasers and aliens which can be bad for your health, but somewhere there are weapons and defences which will protect you.

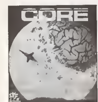
A few nice touches – such as the display

SHADOWFIRE certainly set new standards in programming sophistication when it first appeared on the Commodore 64 a year ago. It still looks pretty good today, with an icon-driven game system which is streets ahead of many otherwise similar games.

As controller of the elite Enigma Force, your task is to rescue Ambassador Kryxix and the plans for the Shadowfire ship from the evil General Zoff You have one hour and forty minutes real time to complete the mission.

Your team consists of droids, weapons experts and hardened criminals, each of which has a status screen displaying strength, agility, stamina and weight lifting ability. Having selected a character to control, you can move to the Movement, Object, Battle or Quit screens. These allow you to move each character around the Zoff V space station, use various weapons and objects, fight the defenders, or change control to another member of the Enigma Force

The Shadowfire strategy/adventure/arcade combination is unique, and although you sometimes wish for a more

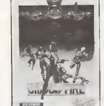


dimming as your powerpack runs low on fuel a game save routine and scrolling messages warning you of potential hazards – aren't really enough to make CORE stand out from the mass of similar maze-quest programs ◀

Game CORE **Supplier** A&F **Micro** CPC 464/6128 **Price** £8.95

straightforward play method, and get fed up with flipping from one selection of icons to another, the colourful graphics and complex strategic elements combine to form a unique game.

Since there are several different ways to complete the game, having finished it once needn't put you off playing it again – in fact you'll find the mixture of elements hold the attention well Destined to become a classic

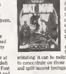


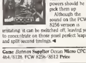
on the Amstrad, as it has on the CBM 64 and Spectrum ◀

Game *Shadowfire* **Supplier** Beyond **Micro** CPC 464/6128 **Price** £9 95

BATMAN may have little or nothing to do with the comic TV series, film or bubble gum of the same name but it's a complex and brilliantly programmed arcade adventure which for the first time gives PCW 8256 owners the chance to get in some real arcade action Apart from the obvious fact that the screen display is green, it's hard to tell this version from those already available for the Spectrum and Amstrad CPC's. Designed in a caricature style which makes Batman a little cloaked gnome with pointy ears, the game is very similar in style to the Ultimate 3-D adventures. Each screen – and there are at least 150 of them – contains some fiendish obstacle or deadly enemy to overcome. First task is to collect your Batboots, Batbelt and Batbag, then you can set off in search of the scattered parts of the Batcraft which you need to rescue the imprisoned Robin.

There are objects to collect which can give you extra lives temporary





invulnerability or extra speed, but The Riddler has placed false clues throughout the caverns, which will cancel Batman's powers should he pick them up

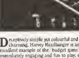
Although the sound on the PCW 8256 version is irritating it can be switched off, leaving you to concentrate on those pixel perfect leaps and split second timings.◀

Game *Batman* **Supplier** Ocean **Micro** CPC 464/6128, PCW 8256/8512 **Price**



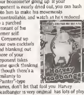
Deceptively simple yet colourful and charming, Harvey Headbanger is an excellent example of the budget game – immediately engaging and fun to play, even though the novelty will not last forever

Dealing with a subject which most journalists find familiar – the inability to function without alcohol – the games



features two blobby oponents, Harvey and his rival Hamish Highball They swing around the screen trying to outdo each other by keeping their cocktail level (shown on the curly straws to either side of the screen) topped up at their opponent's expense.

You make cocktails appear by surrounding an area of squares of your own colour – blue or red. Moving over them to drink results in a horrid slurping noise and your boozometer going up If your opponent is nearly dried out, you can bash into him to make his movements uncontrollable, and watch as he's reduced to a parched remnant of his former self!



Conjuring up your own cocktails and blanking out those of your opponent takes some quick thinking – though there's a similarity to "Painter"-type games, don't let that fool you Harvey Headbanger is very original has lots of play options – two players is more fun than playing the computer – and is very silly, which can only be good. Just £19 99, too!◀

Game *Harvey Headbanger* **Supplier** Firebird **Micro** CPC 464/6128/6128 **Price** £1 99

Getting the CPC picture

TONY KENDLE LOOKS AT TWO NEW GRAPHICS PRODUCTS

Electric Studio is probably the most exciting graphics software company working on the Amstrad at the moment – I genuinely believe that they are the only people who appear to know what a computer graphics device and the controlling software should be able to do

The first problem is transferring your graphics ideas to the screen in the most painless way possible Over the years I've tried a variety of light pens and found them to be almost without exception to be impossible to tolerate

Recently however pixel accurate light pens have appeared used special hardware to allow you to draw freehand with a smoothness and accuracy that will shock anyone who has only tried the old style



Typically these pens cost upwards of forty pounds but Electric Studio have achieved the near impossible with a pen that uses old style hardware but a pixel accuracy It really does work and it is much cheaper

The second problem is writing software that will really allow you to exploit the computer's strengths to complement your skills. Any package that doesn't provide a variety of brush sizes, stipple fills, block cutting and pasting, mirror, rotate and invert etc, is cheating you of the full potential offered by the processor

Any package that doesn't allow you to work in any display mode use the full screen, zoom edit (essential for detailed work) or use the pictures in your own programs is cheating you of your potential for designing useful screens

Electric Studio's software does not only have these features it has more that I would never have dreamt of – for example you can use four linked cursors to produce impressive looking kaladescope-like patterns in seconds.

6128 owners have more luxuries because of the extra memory – you can have several screens in memory at once, delete any changes you have just made or even merge two pictures together

Excellent value for an excellent package ◄

Hardware *Electric Studio Lightpen* **Micro** Any CPC **Price** £19 95, £29 95 disk **Supplier** ESP, P O Box 96, Luton LU3 2JP

Timatic is best known for program conversions for the Amstrad machines and a range of powerful hardware add-ons. This is the first home grown software that I have seen from them and I am very impressed by the quality of the idea and the implementation.

Microdraft is a CP/M + CAD program for the design of technical drawings on any size of A proportion paper What makes it a true draughtsman program distinct from a screen designer is the fact that the drawing data is entered and held in memory as a series of coordinate points rather than as a screen bit image.

The advantages are enormous – pictures can be plotted to a accuracy of 0 01 mm scaled, zoomed or shrunk at will without any loss of precision and very large drawings can be stored in just a few K. If you zoom to the maximum magnification you will be working on a total paper size of three hundred times the height and one hundred times the width of the screen! Of course at the smallest magnification not all details are visible on the monitor but any additions made remain at the highest precision.

The drawing commands are a respectable subset of those you would find on a CAD program costing thousands of pounds.

Lines, circles and arcs can be entered in a variety of ways to best suit your needs – specified by coordinates, joining two or three points or just put in by rubber banding with the screen cursor Tangents, perpendiculars, hatching and dimension labels can all be added automatically in a choice of line types and text sizes.

Blocks can defined which can be rotated, scaled up and down or loaded from a library of your drawings on disc and merged into other drawings, again at any scale or orientation. The program is full of small but powerful details e.g. the labelling remains the right wey up as you rotate a block.

The whole picture can be printed on A4 paper with a dot printer but to get the full value a plotter is essential and a powerful plotter driver is included Any part of the drawing can be produced at different sizes and with a variety of pen types

A separate conversion program is available that will let you swap with 16 bit professional packages such as Autocad. Combine this with an RS232 link or a multi-format 5¼" second drive such as Timatic sell and you have a perfect system for a professional draughtsman who wants to take his work home from the IBM

An excellent package that has opened up a new sphere for the Amstrads. ◄

Program *Microdraft* **Micro** Amstrad CP/M + **Price** £79 00 **Supplier** Timatic Systems, Fareham Market Fareham Hampshire

SAI COMBAT

"One of the best" — Popular Computing Weekly

"It is good, no-nonsense material arts stuff with some really good animation" — Your Computer

"Good fun, graphically excellent, and if you've so far steered clear of martial arts games, this could be the one to get you hooked" — Computer + Video Games

SPECTRUM £8.95, AMSTRAD CPC TAPE £8.95, DISK £13.95



Purnell Book Centre, Paulton, Bristol BS18 5LQ

In Pride of place

THREE AMSTRAD CPC UTILITIES FROM PRIDE REVIEWED BY MODEST KEN FARLOW

Demonstrated to great effect at the Amstrad Show, Pride Utilities' latest batch of more than useful CPC software showed once again that there's no computer which can't be made easier to handle with the right package.

The three programs we looked at cover very different areas, and all seemed to function efficiently with the minimum of fuss and frills.

Printer Pac 2 is a graphics utility compatible with Epson, DMP2000 and DMP1 printers. It adds six commands to basic, all of which are accessed by using the bar and a simple abbreviation.

The program loads into an area above the basic memory and has an optional printer buffer of 1 to 16K which allows you to regain control of the computer while the screen image is printed out.

The most useful function is DUMP, which simply reproduces the whole graphics screen with proportional shading on your printer. If you are only interested in a text dump, then you should use TEXT. PRON can also be used to print out any new text which appears on the screen, while PROFF cancels this function. BFON is used to switch on the printer buffer, while BFOFF, naturally, switches it off.

Available on tape or disk, Printer Pac 2 is undeniably useful, and very easy to handle.

For more creative programmers, *Supersprites* is a straightforward sprite designer and animator. This is a rather more substantial program than Printer Pac 2, coming complete with an 18-page booklet.

As with similar packages for most other home computers, the Pride package operated around the principle of a grid, on which the sprite is designed pixel by pixel. Operating in MODE 0, the package allows you to construct up to 60 sprites of 4 frames each at a time, and includes routines adding includes new Basic commands for movement, positioning, collision, animation and swapping.

The main display shows the colours available down the left hand side. These are selected using the 1 key, which moves an arrow along the choices. The sprite is then designed in the main grid, using the numeric keypad. As you design it, a real-sized image appears in a box to the right. You can also use a joystick in the design function. There are a number of extra facilities available including mirror, invert, copy, and grid sizes.

Once you have finished your design, it can be stored to disk or tape, then loaded for modification at later date.

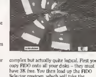
There are around twenty new Basic commands available, which allow you to use your sprites to create simple arcade games. As the manual points out, they would operate more efficiently if called from a machine code program, but the demo games provided with Supersprites is pretty impressive in itself.

New Basic commands include routines for positioning sprites, reflecting them vertically or horizontally, detecting collisions between sprites or between a sprite and the background, splitting the screen, defining screen colours, disabling interrupts during sprite movement, and so on.

Supersprites is available on tape or disk, and struck me as being very user friendly and fast. Whether it can actually help anyone to write a commercial game remains to be seen!

The last Pride program we'll be looking at strikes me as the kind of thing which is either the answer to a prayer, or a complete waste of effort, depending on your point of view. FIDO is intended to allow you to create a database of all your disks, listing the files on each disk by type. There's a security password facility to protect the privacy of your intimate files, and the FIDO program can be copied to any of your existing disks.

The operating procedure is seemingly



complex but actually quite logical. First you copy FIDO onto all your disks – they must have 3K free. You then load up the FIDO Selector program, which will take the directories from each disk and display them as a single file.

You can delete any unwanted titles from the master disk to make those displayed more clear, or run the programs merely by moving the cursor to the relevant program and pressing return. ASCII titles can be entered by pressing F2, and directories can be printed out using the PRINTER ON option on the main menu.

Other options allow you to search for a named file, perform an alphabetical sort, or locate free disk space.

Wild card matching is allowed to a certain extent – for instance, searching for JET would find JETSET, JETBOOT, or JUMPJET, or searching for .BAS will find all *.BAS files. You cannot, though, search for an ambiguous file reference such as *?, though these are allowed in the UTILITIES section.

Overall FIDO is of immense use to anyone with a large collection of disks full of bits and bobs and little organisation. For anyone with a limited number of disks and a more methodical way of working, I wouldn't have thought it would be necessary – but then, every little helps! ◀

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Playing with Joyce

CP SOFTWARE PRODUCED THE FIRST GAMES FOR THE PCW 8256 JOHN MINSON DISCOVERS THAT THEY WILL BE THE FIRST OF MANY

With half a million 8256 and 8512s sold throughout the world there's obviously a firm hardware base; but quite how many people who brought the machines primarily as word processors will also want to play games remains to be seen. Perhaps the companies will take heart from the experience of CP Software the first people to tackle the PCW games market.

CP Software is very much a 'cottage industry' It s a term director Chris Whittington uses as we sit among the computers and cardboard boxes that fill the north London house that is his headquarters.

Chess

"It started over three years ago when I was teaching and hating it – so I quit," Whittington tells me Without any real idea of what he was going to do, but having built several kit computers and completed an Open University degree in computing, he became interested in chess programs.

He produced one for the ZX81 which didn't sell too well but hung on long enough for the big break, which came with an order from W H Smiths for 5,000 copies of the Spectrum version

When the Amstrad CPC machines appeared CP converted their programs and the business expanded but at the beginning of this year sales began to shrink, so they looked at the possibility of transporting the games to the highly successful PCWs, at the same time moving from Yorkshire to the smoke'

"We got our best chess program up and running in about three or four weeks but with a great big gap in the screen where the graphics were going to go We showed it to several people, who said they were very interested, but nobody would tell us how to do the graphics. Amstrad refused, Locomotive wouldn t tell us, there seemed to be just no information coming out at all It seemed to me that Amstrad were deliberately not putting it out to stop games, so that it would stay an office machine'

Chess seemed to have reached a state of stalemate, but then CP had a lucky break. Though Whittington refuses to go into details, to protect his source, it all came about when they showed then unfinished program to somebody with inside information 'We said, Hey doesn't it look good This is where the graphics are going to go' And in five minutes he came back with the full technical specification for us."

It then took a further month to fill the black hole with graphics, completing *3D Clock Chess*. Whittington's partner in CP, Gilly Ashforth designed all the pieces ' We knew that other people were doing chess so we were determined that not only was ours going to be first, but it was also going to be best."

We also wanted to add the idea of the chess clock, in 3D, which nobody else had done. It gives the opportunity to play fast games against the clock which good chess players really like.'

That was the middle of March and Whittington says, "The whole place went totally bananas We shipped over three thousand in the first two and a half days" What makes it all the more amasing was that all the duplication, assembly and problems with discs, which were in short supply and expensive – a common grumble from houses producing on the 3" format – had to be handled by CP rather than a middle-man

Bridge Player followed as their second assault on the machine s games market, converted from the CPC but with added features. This has sold around two thousand units so far, nowhere near as good as *Chess*, which Whittington puts down to it being a minority interest in comparison. However a BBC series on the game has recently helped sales

While the PCWs have been a blessing for CP, with their range of more adult programs that the weary word processor may turn to after a hard day at the green screen, Whittington admits that he finds the Amstrad market a strange one overall

'While a Spectrum title may sell consistently, what we find on the CPC market is that you push the stuff out for a little while and then it just dies. Virtually nobody is buying chess on the CPC Amstrad at the moment and I don t know why that is. It could be that Amstrad are selling a lot of software through mail shot offers and so it's never recorded by the shops.'

CP doesn't plan further games for the 8256, but are hoping to release a toolkit in the near future. Whittington drops a disc into the drive and a graphic demonstration program leaps into life, drawing lines, plotting pixels and providing a wealth of different typefaces. It all goes to show that the Joyces can put on a good appearance, even if it hasn't been made easy by Amstrad

Graphics

"People want to know about the graphics and about CP/M Plus. There's no easy guide to it like the ones to CP/M 2 2 So we ll do a simple guide to it and to this machine for what people want to do with computers when they start to write"

CP is now providing consultancy to other software houses on the graphics and doesn t see itself going further with the 8256 "I think that competent software houses will have sussed out this machine which means that software for it will soon be available In three or four months there will be a flood of arcade games." ◀

Read and write with PCW

FIVE OF THE LATEST BOOKS TO EXPLAIN JOYCE, REVIEWED BY PAUL SVYCARSKY

Suddenly the traditional typewriter's future looks rather sickly and it's all thanks to the Amstrad 8256, the machine that brought word processing within the reach of anyone

For many people, the Joyce will be their first encounter with a computer and even those who have previously used one will find that the software, Locoscript, is far from standard. That makes it more ludicrous that the instructions are less accessible than the hardware

Whenever a new machine appears it's followed by a flood of books and the only thing surprising about the 8256 spate is that it took so long to appear. Joyce's phenomenal success must have caught several publishers with their trousers down. Now the torrent is underway and it's time to look at how well they supplement those arcane manuals.

Using the PCW 8256 by Mike Gerrard £9.95

GERRARD'S is the friendliest of the books. Reading it is rather like a chat with a practicing freelance journalist; just what its author is. His enthusiasm for the machine and knowledge of it, gathered from practical use shine through.

Where it is lacking is in its discussion of the other PCW software and presentation. The first is excusable, it deals with CP/M in just one chapter, Logo in the 13 pages, but these are only intended to be tasters for the complete novice.

More annoying is the lack of an index, or even of chapter content in the page headings. However any Joyce newcomer suffering from technophobia would find lots to allay their fears between its covers.

▶ First Software Ltd., Unit 202, Horseshoe Park, Pangbourne, Berks RG8 7SW

Mastering the Amstrad PCW 8256/8512 by John M Hughes £8.95

THIS IS a much more complete book and as well as an index it contains illustrations, which Gerrard's doesn't. The technically minded will find much to please them here, with an appendix on converting Locoscript files to ASCII plus plenty of details on how to handle CP/M.

Perhaps the most valuable aspect of Hughes book is his discussion of other software for the Joyce – and area which the other books neglect or treat very briefly. For example, you'll find out what a spreadsheet is and how a typical one works. It's all interesting stuff for the small business person

Of course there's a price to pay for this detail. Hughes deals with topics in such a matter of fact fashion that at times he's only marginally less impenetrable than the manuals. But if you are willing to read and re-read, and perhaps you already have some knowledge of computers, then this could be worth looking at.

▶ Sigma Press, 98a Water Lane, Wilmslow, Cheshire SK9 5BB

Amstrad Word Processing on the PCW 8256 by Ian Sinclair £8.95

VETERAN of computer titles, Sinclair comes somewhere between the previous two volumes. His is a well illustrated book and it fulfills its aim is to present an introduction to the software and nothing else

My main complaint is that it's rather a slim volume; just over 100 pages with an additional 50 pages appendix recapping the various menus, all in large-ish type. While this sort of glossary may be useful for some

IAN SINCLAIR

my feeling is that it rather duplicates the manuals. However if you choose this book and want to go deeper there is a sequel *Introducing Amstrad CP/M Assembly Language* from the same author due out later in the year

▶ Collins Professional and Technical Books, 8 Grafton Street, London W1X 3LA

Practical Amstrad Word Processing by David Lawrence and Mark England £7.95

YOU'LL JUST have to take it on trust that I'm being objective about the most recent addition to these guides, which hails from an office not a million miles from Pop Comp Weekly Towers.

Lawrence and England have taken the tutorial approach providing a series of graded lessons which are intended to be read with the Joyce up and running in front of you. Their book is well illustrated and each chapter further divided into numbered sections, making quick reference of one topic or another simplicity itself

While not so chatty as Gerrard their style is easy and providing the newcomer takes things at a reasonable learning pace there's absolutely no reason why they shouldn't soon be getting to grips with the machine by following the practical examples.

With a slightly larger page size than its competitors and running to 160 pages for £7.95, the main objection would seem to be where to put it when you've got a keyboard in front of you but for a solution to that teaser read on

▶ Sunshine Books, 12-13 Little Newport Street, London WC2H 7PP

Reel Time Audio Tutors – Word Processing With Locoscript £9.95

THIS differs from the other guides in that it consists of a ready reference card and two cassettes – tuition for the Walkman generation, if you like.

With just under three hours of instruction and plenty of pauses while you complete exercises, the idea is that this is the nearest thing you'll get to taking a course, but for about a fifth of the price. Your hands are free to hit the keys while your ears stay tuned in to the tape

I think reactions to this are primarily going to be matters of personal taste. If you think you'd prefer these clearly read lessons to delving through printed pages then there's no denying that they will do the job. I wasn't quite so struck I must admit, and couldn't help thinking that looking something up just isn't possible when everything is audio

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Go Forth and multiply

Peter Van Doorn explains the language

After a year or so most computer owners, having become bored with zapping little alien nasties, and having typed in all the listings from *Popular Computing Weekly*, will ask themselves 'what next?'

Trying a new programming language will occur to some, but with so many implementations of almost all the popular languages the choice is daunting!

Forth is just about the only second language which can be implemented on almost all microcomputers. As such, it is a good choice as most people have access to it in the form of cheap off-the-shelf software.

But Forth is popular for many other reasons: the code that is produced is very compact, runs much faster than other languages and is much easier to debug and adapt.

The language itself, however, is not the easiest to learn! In fact, those who are familiar with machine code may find learning Forth easier than those who have only used Basic. This is because Forth is closer to the machine's own language in terms of memory usage, mathematics and the stack.

But first, a little history. Forth was invented by Charles H Moore around 1969. He envisaged a radically different language to those then available, capable of easy interaction between user and machine and a greater ease of control over the computer.

He ended up with that and much more. The basic principle was "Keep it simple!", since any complex problem can be broken down into a series of small, easy to understand components.

This is the power of Forth. Unlike a Basic program, which is a long list of commands stepped through line by line, Forth programs are written as a series of 'words'.

> *"The basic principle is 'keep it simple!' "*

The language comes with a large collection of ready-defined words (like Basic 'commands') which are collectively known as the *dictionary*.

When you type in your program, you have to define the commands in terms of words which are then added to the dictionary, and become an integral part of the language. When the new words are defined, they can include any words which are already in the dictionary.

To illustrate, there are two fundamental Forth words namely ":" and ";". These tell Forth that the words that follow are to be compiled into a new dictionary word. As an example, we can define a word which

Commodore 64's Forth package

Forth Buyers Guide

Program *Abersoft Forth* **Micro** Spectrum 48K **Price** £14.95 **Supplier** Melbourne House, 60 High Street, Hampton Wick, Kingston-upon-Thames, Surrey. Tel 01-943 3911

Program *Forth Plus* **Micro** Commodore 64 **Price** £14.95 **Supplier** Melbourne House, 60 High Street, Hampton Wick, Kingston-upon-Thames, Surrey. Tel 01-943 3911

Program *Forth* **Micro** BBC B **Price** £16.95 tape, £19.50 disc **Supplier** Acornsoft, Fulbourn Road, Cherry Hinton, Cambridge, CB1 4SB. Tel 0223 245200

Program *Forth* **Micro** Enterprise 64/128 **Price** £19.95 tape, £29.95 Rom **Supplier** Boxsoft, 12 White Gates, 100 Station Road, New Barnet, Herts

Program *QL Super Forth Plus Reversi* **Micro** Sinclair QL **Price** £29.95 **Supplier** Digital Precision, 222 The Avenue, Chingford, London E4 9SE. Tel 01-527 5493

Program *White Lightning* **Price** £14.95 **Micros** Spectrum, Commodore 64 **Supplier** Ocean IQ, 6 Central Street, Manchester. Tel 061 832 6633. *A games writer package based on Forth*

Program *MacForth* **Price** £136.00 **Micro** Apple Macintosh **Supplier** Creative Solutions – package available through local Apple dealers

Program *Work Forth* **Price** £35.00 **Micro** Amstrad (CP/M) **Supplier** Micro Processor Engineering, 21 Hanley Rd, Shirley, Southampton, SO1 5AP. Tel 0703 780084

called "ADDUP" The word ' ' tells Forth to start defining, and as such is called a "colon definition" ADDUP is the name for the new word, and the "2 2 " part is the mathematics The last part the " " tells Forth that the definition is complete An important thing to remember is that Forth words must be separated by at least *one space* to distinguish between one word and the next

"The stack is crucial to everything that happens in Forth "

Forth words can contain virtually any character except *Space*

Now that this word is in the dictionary all that is needed is to type ' ADDUP, press *Enter* (or *Return* or whatever) and the computer will respond with

ADDUP 4 OK

The "OK" is the standard FORTH response meaning that all is well, the "4" is the result of the command

Now on to that add bit in the middle the "2 2 + " This is the way Forth deals with numbers and mathematics it is known as reverse Polish notation or postfix notation, where the operator is affixed *after* the number The basic principle is that the numbers are placed on top of what a stack, then acted upon by an operator (+ × * etc) and the result placed back on the stack

The stack works in a LIFO fashion (Last In First Out) When a number is placed onto the stack it pushes down the others already there When it is removed by an operator, the rest move back up with the second becoming the first. So "2 2 +" does the following 2 is placed on the stack, then another 2. The "+" takes the top two numbers from the stack, adds them together and places the result onto the stack The last part the " ", simply removes and *Prints* on the VDU the number on top of the stack

"You can construct your own version of the language to suit your needs "

This is postfix notation at work. All words which require numbers can get them from the stack eg, the word "+" gets two numbers from the stack and adds them, " " gets one number from the stack and prints it *Emit* (a Forth word similar to Basic s *Chr$*) gets a number from the stack and prints the corresponding *Ascii* character Thus when *all* operators are defined to work on values already on the stack, interaction between many operations and words remains simple no matter how complex the program gets

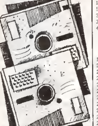
The stack is crucial to everything that happens in Forth For example, one of Forth's functions, *Max*, chooses the larger of two numbers It does this by taking the two top-most numbers from the stack, choosing the biggest and then returning it to the stack The smallest simply vanishes unless you program for another result

The domination of the stack manifests itself in direct mode too In Basic for example you could enter something like ' PRINT 6/2 " In Forth, however, the numbers to be acted on most first be placed on the stack so you must enter '6 2 / , '

This means that when constructing your program you must constantly be aware of what is on top of the stack to avoid manipulating a number which the program isn t expecting

All of this means that Forth is not the easiest of languages to get to grips with especially if you ve done much programming in Basic or Pascal However, it is much faster than Basic and is ultimately flexible since you can more or less construct your own version of the language to suit your particular needs

Colour swopping on QL



by Robin Blow

In this article I intend to shed some light on the practically undocumented *Recol* command. This of course uses the technique that the revolving planets demo by Acornsoft utilises.

The *Recol* command works on a specified window or the whole screen. It will swop the colours presently on the screen with others defined by the programmer in the *Recol* statement.

To give a simple idea of the possibilities type in Listing 1 and run it. The program draws three different coloured circles and swops the colours around so that what was originally blue becomes red, red becomes magenta and what was magenta becomes blue. This is relatively ample but it does have a noticeable drawback. Speed, or the lack of it. However, if the object or objects are small then this problem can be rectified by putting them into windows. This way the computer only scans the window instead of the entire screen thus speeding things up considerably.

Listing 2 is more advanced in that it creates a sphere on the screen and with the help of *Recol* gives the illusion that it is spinning. A small window is used which enables the swopping of the three colours to happen at greater speed.

```
1 PAPER 0:CLS
10 FOR i=1 TO 3:INK i:FILL 1:CIRCLE i*20+10,50,8:FILL 0:NEXT i
20 FOR i=1 TO 20
30 RECOL 0,2,3,1,4,5,6,7
40 NEXT i
```

```
1 REMark Program 2
200 OPEN #4,scr_100 100,200,20:WINDOW #4 75,55,200,20
201 MODE 8:PAPER 0:CLS:INK #4,7:PAPER #4,0:CLS #4
202 LET a=PI
203 LET c=7
205 FOR i=1 TO 6
210 FILL #4,1:INK #4,c:LINE #4,50,0 TO 50,100:ARC #4,50,0 TO 50,100,a:FILL #4,0
220 LET a=a-(i/6)
221 IF c=7 THEN LET c=5:GO TO 230
222 IF c=5 THEN LET c=6:GO TO 230
223 IF c=6 THEN LET c=7:GO TO 230
230 NEXT i
235 LET a=-PI:LET c=5
240 FOR i=1 TO 6
245 FILL #4,1:INK #4,c:LINE #4,50,0 TO 50,100:ARC #4,50,0 TO 50,100,a:FILL #4,0
250 LET a=a+(i/6)
251 IF c=7 THEN LET c=6:GO TO 260
252 IF c=5 THEN LET c=7:GO TO 260
253 IF c=6 THEN LET c=5:GO TO 260
260 NEXT i
261 INK 7:LINE 75,70 TO 75,10
263 FOR i=1 TO 500
265 RECOL #4,0,1,2,3,4,6,7,5
270 NEXT i
```


Search and replace

by J Temple

When writing programs it would often be useful if some way of replacing strings quickly and easily could be provided. Changing *Proc* and variable names is another application. If you don't feel like paying £30 for professional software that provides such a utility then the following listing is for you.

The program should be typed in and saved. When it is subsequently run the program will inform you as to whether you have entered everything correctly or not.

Once you have the program running correctly you should save it as a normal *Basic* program. You should then save the actual machine code using *"Saving "Repag" 900 BOO*.

After saving the object code, when you want to use the Search and Replace routine all you have to do is type **Run "Repobj"* or just **Repobj* with discs.

The new commands are called **Replace* and **Sreplace* and should be used like any other OS asterix command. The format used is **Replace target string" replacement string"*.

This will replace the target string with the replacement string throughout the program. Each string must not be above 31

characters in length Although a null string is not allowed as the target it is allowed as the replacement

*Sreplace (Selective replace) should be followed with the same parameters as *Replace, but this command also uses the *Basic* integer variables A% and B% These variables should specify the given range of lines in which the target string is going to be replaced

It should be noted that since the routine uses the memory area between &900 and &800 then using a speech synthesiser more than four sound envelopes or the cassette filing system commands *Bput* and *Bget* will corrupt the machine code By altering the value of P% in line 90 the code can be stored elsewhere

```
10REM SEARCH & REPLACE
20REM for BBC/Electron
30REM by J.Temple 1986
40MODE 7
50PROCassemble
60END
70DEFPROCassemble
80FOR O%=0 TO 2 STEP 2
90P%=&900:Z%=P%:[OPT O%
100.sv LDA &209
110CMP £9:BEQ vs:STA &7D
120LDA &208:STA &7C
130LDA £nw MOD256:STA &208
140LDA £nw DIV256:STA &209
150.vs RTS
160.nw STA &70
170STX &F2:STY &F3
180LDX £255:LDY £255
190.rm JSR sp:CMP £42
200BEQ rm:STA &70:CMP £83
210BNE gr:INY:.gr DEY
220.ch CPX £6:BEQ mt
230JSR sp:INX:CMP £46
240BEQ mt:CMP cm,X:BEQ ch
250.ov LDY &F2:LDY &F3
260LDA &70:JMP (&7C)
270.mt CPX £3:BCC ov
280LDA £0:STA &71:STA &72
290STA &73:JSR ga:JSR sp
300CMP £44:BNE mc:JSR ga
310LDA &71:BEQ bs:JSR ss
320RTS
330.sp INY:LDA (&F2),Y
340CMP £32:BEQ sp:RTS
350.ga STA &70:JSR sp
360CMP £34:BNE mq:LDX £255
370.gc INX:INY
380LDA (&F2),Y:CMP £13
390BEQ mq:CMP £34:BEQ rt
400PHA:LDA &70:CMP £44
410BEQ gb:PLA:STA &600,X
420INC &71:LDA &71:JMP cl
430.gb PLA:STA &620,X
440INC &72:LDA &72
450.cl CMP £33:BCC gc
460.bs BRK:OPT FNequb(253)
470OPT FNequs("Bad string")
480.mc BRK:OPT FNequb(5)
490OPT FNequs("Missing ,")
500.mq BRK:OPT FNequb(9)
510OPT FNequs("Missing """)
520BRK
530.rt RTS
540.ss LDA £0:STA &75
550LDA &18:STA &76
560.nl LDA &7B
570CMP £&3:BNE cn
580LDY £1:LDA (&75),Y
590CMP &405:BCC ld:BNE ib
600INY:LDA (&75),Y
610CMP &404:BCC ld
620.ib LDY £1:LDA (&75),Y
630CMP &409:BEQ is:BCS ld
640BCC cn:.is:INY
650LDA (&75),Y:CMP &408
660BEQ cn:BCS ld
670.cn LDY £4
680.rv LDX £0:STY &74
690.cs CPX &71:BEQ rs
700LDA (&75),Y:CMP &600,X
710BEQ nc:CMP £13:BEQ ld
720INY:BNE rv
730.nc INX:INY:BNE cs
740.ld LDY £3:LDA &75
750CLC:ADC (&75),Y:STA &75
760BCC ca:INC &76
770.ca LDY £1:LDA (&75),Y
780BPL nl:RTS
790.rs LDA &12:STA &79
800LDA &13:STA &7A
810LDY £3:LDA (&75),Y
820STA &70:CLC:ADC &72
830BCS ld:LDA &71:CMP &72
840BCC su:BNE sd:JMP in
850.sd LDA &72:JSR cv
860LDA &71:SEC:SBC &72
870STA &73:LDA &70:SEC
880SBC &73:STA (&75),Y
890.dn LDY &73:LDA (&77),Y
900LDY £0:STA (&77),Y
910LDA &77:CLC:ADC £1
920STA &77:BCC cb:INC &78
930.cb LDA &78:CMP &7A
940BNE dn:LDA &77:CMP &79
950BNE dn:LDA &12
960SEC:SBC &73:STA &12
970BCS sa:DEC &13
980.sa JMP in
990.su LDA &71:JSR cv
1000LDA &72:SEC:SBC &71
1010STA &73:CLC:ADC &70
1020STA (&75),Y
1030.up LDA &79
1040SEC:SBC £1:STA &79
1050BCS sb:DEC &7A
1060.sb LDY £0
1070LDA (&79),Y:LDY &73
1080STA (&79),Y:LDA &7A
1090CMP &78:BNE up:LDA &79
1100CMP &77:BNE up:LDA &12
1110CLC:ADC &73:STA &12
1120BCC in:INC &13
1130.in LDX £0:LDY &74
1140LDA &72:BEQ fr
1150.ic LDA &620,X
1160STA (&75),Y:INX:INY
1170CPX &72:BNE ic
1180.fr JMP rv
1190.cv CLC:ADC &75:PHP
1200CLC:ADC &74:STA &77
1210LDA &76:ADC £0:PLP
1220ADC £0:STA &78:RTS
1230.cm
1240]:NEXT
1250$cm="REPLACE"
1260VDU 12,10,10
1270IFP%<>Z%+&1F8 GOTO1310
1280C%=0:FOR M%=Z% TO P%+7
1290C%=C%+?M%:NEXT
1300IFC%=&E52B PRINT "Code correct
- now save using"'"*SAVE ""REFobj""
";~Z%;" ";~Z%+512:ENDPROC
1310VDU 7
1320PRINT"ERROR IN PROGRAM"
1330PRINT"Please check and try
again."
1340ENDPROC
1350DEFFNequb(N%)
1360?P%=N%:P%=P%+1:=O%
1370DEFFNequs(N$)
1380$P%=N$:P%=P%+LEN(N$)
1390=O%
```

DEBUGGIN'

by T A Bartley

This week sees the final installment of *Debuggin* with only another 1847 items of data to enter

First type in and run Program 2b Now start carefully entering all the data When you have typed it all in find the data you saved last week and load it in by using *Load ""* Now save the entire block of data with *Save "Debugcode",B,31000,3896*

Type in Program 3 and run it by using *Goto 330* If the checksum produced is not 269929 then it's time to do some debuggin' of your own

If this all seems too much then send £2 to Mr T A Bratley at 81 Beverley Crescent, Grimsby S Humberside DN32 9TJ and he will send you a cassette with the program on

To run the game automatically you should have a tape with Program 1 from last week followed by the block of data from this week on it Just type *Run""* and wait for *Debuggin'* to begin

Program 2B

```
100 ***** PROGRAM 2B DECIMAL LOADER **
***
190 MODE 2
200 total=0
210 FOR n=33048 TO 34895
220 INPUT i
230 PRINT n;i
240 POKE n,i
250 total=total+i
260 NEXT n
270 PRINT "Checksum = ";total
280 STOP
290 ************************************
300 '
310  PROGRAM 3: DECIMAL DUMPER
320 '
330 ************************************
340 MODE 2
350 total=0
360 FOR a 31000 TO 34895 STEP 8
370 b=PEEK(a)+PEEK(a+1)+PEEK(a+2)+PEEK(a
+3)+PEEK(a+4)+PEEK(a+5)+PEEK(a+6)+PEEK(a
+7)
380 PRINT a;PEEK(a);TAB(10);PEEK(a+1),TA
B(15);PEEK(a+2);TAB(20);PEEK(a+3);TAB(25
);PEEK(a+4);TAB(30);PEEK(a+5);TAB(35);PE
EK(a+6);TAB(40);PEEK(a+7);TAB(50)"= ";b
390 total=total+b
400 NEXT
410 PRINT "checksum total = ";total
```

Program 3

33048	79	121	220	30	0	111	41	41	= 608
33056	41	42	42	25	205	229	201	62	= 891
33064	18	58	230	122	71	80	76	58	= 625
33072	229	122	197	30	40	193	205	217	= 1264
33080	128	30	80	192	205	138	129	33	= 925
33088	220	190	205	18	128	30	188	196	= 1188
33096	205	131	121	33	139	195	205	174	= 1308
33104	129	30	184	197	205	217	128	33	= 1063
33112	171	190	205	174	128	30	0	199	= 1115
33120	205	18	130	193	16	206	201	62	= 1021
33128	78	58	224	123	80	36	58	225	= 793
33136	122	71	197	32	68	190	205	131	= 1016
33144	129	38	130	192	205	174	129	193	= 1190
33152	16	206	201	208	25	109	58	220	= 1158
33160	122	71	197	6	0	197	225	229	= 1055
33168	205	33	58	224	122	61	79	6	= 788
33176	0	230	176	43	54	0	225	124	= 852
33184	190	0	205	130	16	231	1	80	= 336
33192	192	9	193	16	225	205	205	25	= 1063

33200	109	58	224	122	71	197	6	0	= 787
33208	197	205	229	205	43	58	209	122	= 1268
33216	62	79	6	0	203	104	33	54	= 541
33224	0	225	124	190	0	193	193	16	= 947
33232	220	1	80	192	9	193	16	221	= 943
33240	201	205	25	109	58	224	122	71	= 1015
33248	197	6	0	197	229	229	205	1	= 1074
33256	80	0	9	58	229	128	79	6	= 589
33264	0	230	176	225	17	0	0	25	= 673
33272	190	16	220	17	80	192	25	193	= 945

33280	16	229	17	176	250	25	205	58	= 956
33288	138	201	205	75	189	58	224	120	= 1154
33296	71	197	6	0	197	220	229	17	= 254

33304	58	0	25	200	229	58	209	122	= 879
33312	79	6	0	230	176	225	17	0	= 588
33320	0	25	190	16	231	17	176	191	= 807
33328	33	193	16	221	17	80	0	25	= 577
33336	205	80	138	201	6	8	197	229	= 1020
33344	229	205	19	54	0	58	229	122	= 229
33352	61	79	6	0	230	176	229	17	= 801
33360	0	0	25	190	16	230	201	0	= 675
33368	0	0	0	0	0	0	0	0	= 0
33376	0	0	0	0	0	0	0	0	= 0
33384	0	0	0	0	0	0	0	83	= 83
33392	67	79	82	69	73	73	76	73	= 591

33400	86	80	90	76	69	80	49	76	= 614
33408	33	1	1	17	111	130	6	5	= 304
33416	205	223	130	30	1	13	17	116	= 705
33424	130	6	2	205	253	130	33	2	= 761
33432	12	17	118	130	6	5	205	205	= 766
33440	130	33	2	3	17	123	130	6	= 444
33448	5	205	253	130	205	17	95	128	= 1038
33456	42	187	130	213	205	11	131	206	= 1048
33464	32	1	7	6	5	205	253	130	= 640
33472	201	17	108	130	42	180	128	213	= 544
33480	205	11	131	206	30	1	16	6	= 612
33488	5	205	253	130	205	17	50	110	= 1034
33496	42	91	130	213	205	43	131	209	= 1060

33504	33	2	10	6	1	205	253	130	= 645
33512	201	17	82	130	42	82	130	213	= 985
33520	205	25	131	205	33	2	9	6	= 620
33528	2	205	253	130	201	229	205	157	= 1342
33536	187	229	30	205	58	187	36	19	= 979
33544	16	243	201	1	205	216	205	51	= 1173
33552	131	18	19	1	24	252	205	51	= 791
33560	131	18	19	1	132	208	205	51	= 885
33568	131	18	19	1	240	227	205	51	= 926
33576	131	18	19	1	255	255	205	51	= 935
33584	131	18	201	175	9	60	56	250	= 985
33592	230	46	61	199	40	201	221	229	= 1261

33600	62	1	33	126	131	205	180	180	= 944
33608	33	127	131	205	170	180	220	225	= 1288
33616	205	221	229	62	2	33	130	131	= 1024
33624	205	180	180	62	1	33	162	131	= 979
33632	205	191	188	30	146	131	205	170	= 1268
33640	188	221	225	205	221	229	62	3	= 1288
33648	33	175	131	205	180	180	30	166	= 1118
33656	131	205	170	188	221	225	201	1	= 1342
33664	1	0	0	0	1	0	0	0	= 2
33672	1	1	10	1	3	0	1	12	= 29
33680	255	1	4	2	1	0	0	1	= 264
33688	0	0	0	2	12	1	1	5	= 21
33696	220	3	1	27	2	1	1	3	= 258

33704	0	0	0	11	0	0	0	3	= 14
33712	15	1	1	16	0	1	15	250	= 299
33720	15	68	69	66	85	71	71	73	= 518
33728	38	39	0	0	0	0	0	0	= 117
33736	0	0	0	0	0	0	0	0	= 0
33744	0	0	68	89	32	84	68	65	= 385
33752	46	66	82	65	84	76	69	89	= 577

33760	0	0	0	0	0	0	0	0	= 0
33768	0	0	0	0	0	67	79	90	= 236
33776	89	82	72	78	32	84	32	49	= 552
33784	57	56	54	0	0	0	0	0	= 167
33792	0	0	0	0	0	0	0	0	= 0

33800	83	69	76	69	67	84	32	83	= 563
33808	58	89	69	68	32	40	30	49	= 438
33816	32	80	79	32	58	30	41	97	= 449
33824	89	76	76	32	68	79	78	69	= 567
33832	44	73	84	38	83	32	65	32	= 452
33840	78	69	87	32	72	73	71	72	= 554
33848	32	83	67	79	82	69	30	0	= 442
33856	0	0	0	72	85	82	80	32	= 319
33864	76	80	67	75	44	72	65	56	= 538
33872	89	32	69	79	79	84	72	83	= 345
33880	82	32	84	58	89	0	0	0	= 305
33888	0	0	0	0	80	82	69	83	= 314
33896	80	32	38	83	80	80	67	68	= 954

33904	39	30	78	79	92	30	68	20	= 420
33912	78	69	87	32	73	68	77	69	= 303
33920	0	0	0	0	0	0	0	89	= 89
33928	79	85	32	82	69	80	69	68	= 565
33936	82	73	76	76	73	65	78	84	= 607
33944	38	68	82	68	82	83	32	80	= 545
33952	82	68	47	82	32	84	79	32	= 385
33960	88	76	65	82	197	213	229	205	= 1154
33968	117	187	36	205	98	187	42	225	= 1079
33976	122	229	205	131	129	1	220	5	= 1042
33984	205	0	138	225	205	131	129	1	= 1030
33992	220	5	205	0	139	229	205	19	= 1017

34000	193	18	128	177	32	214	201	197	= 1145
34008	213	229	205	117	187	28	205	98	= 1272
34016	187	42	227	122	205	205	174	129	= 1315
34024	1	220	5	205	0	126	225	205	= 995
34032	176	130	1	220	5	205	0	126	= 865
34040	225	205	27	193	11	128	177	30	= 994
34048	214	201	80	12	0	6	6	1	= 320
34056	13	13	7	1	16	13	8	23	= 94
34064	6	1	13	8	7	1	16	13	= 65
34072	9	12	4	1	13	14	12	6	= 71
34080	1	13	19	12	1	4	13	14	= 79
34088	17	6	1	13	9	17	4	1	= 68
34096	13	2	17	6	1	13	2	13	67

34104	1	4	13	2	12	6	1	13	= 52
34112	98	38	2	6	4	1	13	5	= 167
34120	2	1	2	13	2	9	4	1	= 39
34128	13	2	7	1	2	13	16	6	= 60

[illegible]										

[illegible]										

[illegible]										

BABY MOLE ARCADE STYLE

by Philip Seward

Baby Mole is an arcade style game in which you play the part of said mole who has fallen into some old caverns. His only method of escape is to jump into an old rowing boat and try to stay afloat as the caverns flood. To hinder his escape old barrels tumble down from above each of which could mean death for the mole.

Full instructions are given in the game



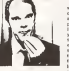

```
0 PRINT"[CLR]PLEASE WAIT!",
1 POKE2040,204:A=200:FORI=1TO7:POKE2040+I,A:A=A+1:IFA>203THENA=200
2 NEXT
3 POKE53248+34,3:POKE53248+27,254:POKE53248+22,24
5 FORI=0TO91:READA:POKE49152+I,A:NEXT
6 FORI=0TO15:READA:POKE12288+(200*8)+I,A:NEXT
7 FORI=0TO7:POKE12288+I+1208,85:NEXT
9 GOSUB2100
10 POKE56,48:CLR:CH=12288
30 POKE56334,0:POKE1,51
35 FORI=0TO60*8:POKECH+I,PEEK(53248+I):NEXT
36 POKE1,55:POKE56334,1
38 FORI=0TO60*8STEP8:A=CH+1+I:B=PEEK(A):POKEA,BAND6:NEXT
39 POKE53269,0:GOSUB4000:CH=12288
40 POKE53281,8:PRINT"[CLR]":POKE53281,6:POKE53280,6:SYS49203:GOSUB4050
41 S1=54276:S2=54277:S3=54273:POKE54296,15
45 FORI=128*8TO(128+23)*8:POKEI+CH,0:NEXT
50 GOSUB3000
60 FORI=1TO12:POKE1064+I,201:POKE1984+I,201:NEXT
61 FORI=17TO29:POKE1064+I,201:POKE1984+I,201:NEXT
70 FORI=1064TO1984STEP40:POKEI,201:POKEI+30,201:NEXT
80 SA=1224
90 FORF=1TO4
100 D=INT(RND(1)*2)
```

```
110 L=INT(RND(1)*22-1)
111 FORJ=1TO29:IFJ>LANDJ<L+7THEN113
112 POKESA+J,200
113 NEXT
130 SA=SA+160:NEXT
135 PD=12288+128*B
140 X=184+PD:C=53249:POKEC,231:B=53248:POKEB,130:R=653:T=49152:Y=49180
150 S=200:W=53278:F=53279:FORI=1TO10:F=PEEK(W):P=PEEK(F):NEXT
160 SYSY:D=D+1:IFD 205THEND=204
170 POKE 646,0:SYST:H=H+1:IFH=8THENH=0:POKEX,B5:X=X+1:POKECC,PEEK(C)-1:GOSUB400
200 E=PEEK(203):IFE=12THENPOKEB,PEEK(B)-LE
204 SYST:IFE=23THENPOKEB PEEK(B)+LE
210 IFPEEK(R)<>0THENR=7
211 IF(PEEK(W)AND1)=1OR(PEEK(F)AND1)=1THENGOTO250
212 IFPEEK(C)=50THEN600
220 GOTO160
250 POKE53269,1
240 FORI=255TO0STEP-1:POKES1,0:POKES3,1:POKES3,1:POKES1,17:NEXT
248 FORI=128TO(128+23)*8:POKEI+CH,0:NEXT
250 MO=MO-1:IFMO=0THEN37
280 GOTO40
400 POKES1,0:POKES2,2:POKES3,PEEK(C):POKES1,129:RETURN
600 POKE53269,1
601 FORI=100TO10STEP-5:POKES1,0:POKES2,40:FRA=17BI+30:POKES1,17:POKES3,0:NEXT
602 NEXT
610 HI=HI+1:IFHI>15THENHI=15
620 GOSUB4050:SC=SC+HI*100
630 GOTO40
999 END
1000 REM***START OF M/C DATA***
1010 DATA162,2,169,1
1020 DATA200,24,105,1,157,1,208,203
1040 DATA245,169,0,173,4,220,157,0,208
1070 DATA232,232,224,16,208,231,96,162
1080 DATA1,189,248,7,24,105,1,201
1090 DATA204,144,2,169,200,157,248,7
1100 DATA232,224,0,208,236,96,234,169
1110 DATA40,133,250,169,4,133,251,162
1120 DATA120,160,1,130,145,250,200,192
1130 DATA250,208,249,232,165,250,24,105
1140 DATA40,133,250,165,251,105,0,133
1150 DATA251,224,152,208,200,96,0
1190 REM***END   OF M/C DATA***
1200 DATA174,255,234,255,174,255,250,250
1210 DATA170,170,170,170,170,170,170,170
2000 DATA42,0,0,169,128,0
2001 DATA165,128,0,150,128,0
2002 DATA154,128,0,42,0,0
2010 DATA42,0,0,166,128,0
2011 DATA160,128,0,166,120,0
2012 DATA166,128,0,42,0,0
2020 DATA42,0,0,154,128,0
2021 DATA150,128,0,165,128,0
2022 DATA169,128,0,42,0,0
2030 DATA42,0,0,177,128,0
2031 DATA167,128,0,147,128,0
2032 DATA174,128,0,42,0,0
2080 DATA0,2,0,1,82,0,5,84,0,5,160,0
2081 DATA5,186,0,0,32,0,0,252,0,0,255,0,0,207,0,170,174,170,80,105,170,21
2082 DATA117,85,0,192,0,0,192,0,0
2050 DATA0,0,0,72,0,21,80,0,22,160,0,22
2081 DATA232,0,0,128,0,3,240,0,3,252,0,3,220,0,170,174,170,85,93,85,42,170,170
2082 DATA21,85,85,0,0,-1
2100 REM***SPRITE DATA**
2110 FORI=0TO384:POKE230*64+I,0:NEXT
2120 FORI=0TO3:FORJ=0TO17:READA:POKE(200+I)*64+J,A:NEXTJ,I
2130 FORI=0TO41:READA:POKE204*64+I,A:NEXT
2140 FORI=0TO39:READA:POKE205*64+I,A:NEXT
2150 RETURN
3000 POKE49159,LA:P=255:POKE56335,1:FORI=1TO10STEP2:P=P-31
3001 POKE53248+I,P:POKE53247+I,0:NEXT:POKE53248+28,208
3002 FORI=1TO7:POKE53248+39+I,0:NEXT
3003 GOTO6000
4000 PRINT"☐":POKE53281,6:POKE53280,6:POKE198,0:POKE53248+24,29:SC=0
4001 PRINT"                 BABY MOLE"
4002 PRINT"☐            BY PHILIP SEWARD"
4003 PRINT"☐ I'LL  START BY  PUTTING  YOU  IN THE"
4004 PRINT"☐PICTURE, YOU ARE  TAKING PART IN A NEW"
4005 PRINT"☐ADVENTURE WITH BABY MOLE."
4006 PRINT"☐BABY MOLE  HAS FALLEN FROM HIS SHELF"
4008 PRINT"☐INTO A DARK  CAVERN HIS ONLY MEANS OF"
4009 PRINT"☐ESCAPE, IS TO JUMP  INTO AN OLD ROWING"
4010 PRINT"☐BOAT. BY STAYING  AFLOAT ON THE VESSEL"
4011 PRINT"☐HE CAN GUIDE HIMSELF THROUGH THE CAVES"
4012 PRINT"☐ABOVE."
4013 PRINT"☐ BUT BEWARE OF THE  TUMBLING  BARRELS"
4014 PRINT"☐WHICH HAVE  ESCAPED FROM AN OLD ARCADE"
4015 PRINT"☐ARE LEFT ON THE SIDE TO ROT."
4016 PRINT"☐ CONTROL KEYS ARE:"
4017 PRINT"☐          Z - LEFT"
4018 PRINT"           X   RIGHT"
4019 PRINT"      SHIFT - INCREASE WATER LEVEL"
4020 OPEN1,0:MO=3
4021 PRINT:PRINT"INPUT LEVEL (1-15)";:INPUT#1,A$
4022 CLOSE1
4023 HI=VAL(A$):IFHI<1ORHI>15THEN4020
4030 GOSUB4050
4040 RETURN
4050 LC=2:LA=1:IFHI=15THENLE=2:LA=3:POKE53269,255:RETURN
4055 IFHI/2=INT(HI/2)THENLE=4:LA=2
4056 IFHI>9THENLA=LA+1
4060 N=(INT((HI+1)/2)):Y=0:FORI=0TON:K=K+2↑I:NEXT:POKE53269,K:RETURN
6000 PRINT"☐"TAB(32)"☐SCORE"
6010 PRINT"☐";TAB(32)SC
6020 IFSC>HITHENHI=SC
6030 PRINTTAB(31)"☐HI-SCORE"
6040 PRINT"☐";TAB(32)HI
6050 PRINT"☐"TAB(32)"LEVEL"
6060 PRINT"☐"TAB(32)HI
6070 PRINT"☐"TAB(32)"MOLES"
6080 PRINT"☐"TAB(32)MO
6090 RETURN

READY.
```



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Macro explanation

Andrew Smith of Sevenoaks, in Kent writes

Q I am interested in learning machine code on my Amstrad CPC6128 but am confused by some of the terms used in the assemblers What is a macro, and what are options and linking?

A A macro is a piece of machine code that has been written to do a specific job and is likely to be used very commonly such as printing a number to the screen or getting a character from the keyboard Once defined, it may have arguments passed to it and can be referred to by name only ie it looks like one of the assembler commands If you include a reference to a predefined macro in later code, the definition and arguments will be inserted into the code at that point.

This can then be included in the code as though it were an instructions that the microprocessor understands, though in the assembled code it will just be the series of instructions that make up the macro

In general macros are best used for routines that need to be accessed repeatedly but with as much speed as possible Otherwise it is easier and more economical on space to use a subroutine which is defined once and jumped to as many times as necessary

Options are generally specified with the *Opt* command to the assembler They are used to change the status of certain outputs and conditions at assembly time (generally known as switches) such as whether there should be any output and whether it should go to the screen a file or the printer

Linking is the process by which an assembled piece of code is made into an executable file On many small computers it is unnecessary to link the code to the system since you know exactly where it is to start finish and execute However in larger more complex systems such as CP/M or Unix the system is so complicated that how the code is executed is up to the system and not the user In CP/M linking a file produces an executable COM file This has all the information the operating system needs to load the file to the correct place in memory, and set the program in motion

Back to Basic roots

L Groves of Colchester in Essex writes

Q In Basic, there is a function *Sqr* which returns the square root of a number. How does this function work, and how accurate is it?

A There are different ways of finding the square root of a number one would be to find the logarithm, divide by two, then anti log the result

From a programming point of view all that needs to be done is to approximate the answer by dividing the number to be square rooted by two since two is as good an approximation as any Then subtract the approximation (2) from the result and divide by two Add the result of this to the first approximation to give a new approximation and start again dividing the number to be rooted by the new approximation

The square root is reached when the new approximation is equal to the result of the number to be rooted divided by the old approximation If you look at the square root graph what is actually happening is that we guess a number on the square root axis and then alter it until a horizontal line from that number meets the vertical line coming up from the numbers axis on the curve

The program is an example of how this is done in Basic Because the arithmetic is only accurate to a certain number of decimal places it is necessary to truncate the numbers with *Int* and a large multiplication Otherwise the program would never find that the two numbers R and M, were equal since due to the finite byte length of the machine, they always have to be rounded up, or down and hence may not be the same as the last decimal place

In the example the # sign is used to denote double precision variable The last two lines compare the accuracy of the routine with that of the computer

```
10 INPUT Square root of A#
20 R#=2
30 M#=A#/R#
40 R# R#+((M# R#)/2)
50 IF
INT(R#*1E+13)<>INT(M#*1E+13)
THEN goto 30
60 PRINT M# SQR(A#)
70 PRINT M#*M# SQR(A#)SQR(A#)
```

Hexadecimal display

M Harvey, of Rochdale in Lancs, writes

Q My Commodore 64 does not have a *Bin$* function provided in some of the newer Basics. I would also like to know what hexadecimal numbers are, and how to display them

A *Bin$* is a function that returns the binary representation of its argument ie, *Bin$(5)* gives 101 The following routine will give you binary numbers justified to eight places, ie eight figures are always printed If you want larger or smaller representations simply change the value the loop counter T counts up to

The routine works by what is called the double dabble method divide the number by two, the remainder being 0 or 1, the quotient is then divided by two again and the remainder taken So

2| 10
2| 5 rem 0
2| 2 rem 1
2| 1 rem 0
remainder 1

Take the remainder in reverse order and the binary number is revealed $10_{dec} = 1010_{bin}$ The program puts the remainders into B$ and then divides B by two Because things are done in reverse order, the rest of the string after B has become zero consists of zeros giving the justification

```
10 INPUT "Enter number" B
20 B$ ""
30 FOR T=0 TO 7
40 B$=STR$(B-(INT(/2)*2))+B$
50 B=INT (B/2)
60 NEXT
70 PRINT B$
```

Hexadecimal numbers are numbers to base 16 Decimal is base 10 so we only count up to 9 before starting again with 10 ie 1*10 plus 0 In hexadecimal we count up to 15 before reaching 10 but in this case it means 1*16 plus 0 Because there are no characters that by themselves mean 10, 11, 12 etc A B C D E and F are used to represent what, in decimal would be 10 to 15

The advantage of hexadecimal numbers in computers is that it is easy to convert from binary to hex and vice versa and hexadecimal is a much more compact way of writing a binary number For instance say there is a memory address in binary 1111000010100010 To convert to hexadecimal split it into groups of four digits, and each group is then a number between 0 and 15 so

1111 0000 1010 0010
F 0 A 2 or
F0A2

Converting from decimal to hexadecimal is a little more difficult One method is the double dabble used in the binary program above Instead of dividing by 2, 16 is used and a check is made for the letters A F that come after 9 The fact that the Ascii character set has A as 65, and 0 as 48 is used to good effect in line 50

```
10 INPUT Enter number B
20 B$ ""
30 FOR T=0 TO 7
40 A=B-(INT(B/16)*16)
50 IF A>9 THEN A$=CHR$(55+A)
ELSE A$=CHR$(48+A)
60 B$=A$+B$
70 B=INT(B/16)
80 NEXT
90 PRINT B$
```

Is there anything about your computer you don't understand, and which everyone else seems to take for granted? Whatever your problem *Peek* it to Kenn Garroch and every week he will *Poke* back as many answers as he can. The address is *Peek & Poke*, *PCW*, 12-13 Little Newport Street, London WC2R 3LD



Sound terminology II

Mark Jenkins with reader communications and the second part of our Micro Music glossary . . .

Last time we looked at some new Spectrum packages for XRI and began a glossary of micro music terms based on the glossary of micro music terms based on the *Acorn Music 500 Handbook* written by Chris Jordan of Hybrid Technology Now it's time for Part Two

Filter

Circuit to cut out various frequency components of a sound A Low Pass Filter (LPF) cuts off all frequencies above the point at which it is set making the sound smoother and duller A High Pass Filter (HPF) cuts off all frequencies below the point at which it is set making the sound sharper and toppier A Band Pass Filter (BPF) cuts off all fequencies above and below the band to which it is set (of which the width is variable) and so can create many different tones

The power with which a filter rejects frequencies is referred to as its Resonance of Q' factor and high Q settings result in a distinct whistle around the pitch at which the filter is set and eventually in the filter turning into an *oscillator* The filter on a synthesiser or computer sound chip, along with the basic waveform of the oscillators is the main factor in determining the tone of a sound The filter can often be controlled by an envelope so that the tone of the sound changes during the course of each note – this produces the typical synthesiser twang' sound

Flat

An instruction to lower the pitch of one note or every occurence of that note if used in the *key signature*, by one semitone Also means no *equalisation* applied

Frequency

Rate of vibration of a sound measured in Hertz (cycles per second) High frequency sounds have a high pitch low frequency sound have a low pitch the human ear can detect sounds from around 40Hz to 18 000Hz (15kHz) Middle C has a frequency of 2 61 6Hz

Frequency modulation

The creation of sounds by rapidly varying pitch of one *oscillator* with another Used in the Yamaha DX synthesisers and CX5 music computer FM synthesis typically produces sharp, metallic sounds

Fundamental

The closest basic frequency component of a sound Other components (overtones) help define the tone or *timbre* of the sound

The signal which controls an envelope generator Gate On initiates the Attack part of the ennvelope and Gate Off initiates the Release section

Harmonic

One frequency component of a waveform A series of harmonics consisting of simple sine waves can be used to define most complex wave shapes as on the Acorn 500 and Alpha Syntauri

Key

The set of pitches that a piece uses for the notes in its scale, described in the Key Signature at the start of the piece by the starting or root note of the scale, and the pattern of tones and semitones used for the scale, so for example, A Minor of E Flat Major

Modulation

Rapid variation of one parameter of a sound by another signal Slow pitch modulation (at around 7Hz) produces vibrato, slow volume modulation produces tremolo, slow tone variation produces wah-wah, faster pitch modulation produces FM synthesis effects Modulation on a synthesizer is produced by a Modulation Generator (MG) or Low Frequency Oscillator (LFO) It can also mean a change in key in the middle of a piece of music

Next time, in the final part we ll cover more exciting topics including Ring Modulation, an important factor in creating metallic sounds and Waveform the basic way to define instrumental sounds

There s just space to quickly mention two communications which have been received from readers of the column Julian Skidmore of Nottinghamshire has developed a Casio CZ timing package based on a pocket computer Although CZ sounds are easy to program at a simple level, this package allows him to make the DCA DCW and DCO all go from 00 to 50 in 0 3 seconds The answer (DCO Rate 38 time 0 32s DCW Rate 50 time 0 274s DCA Rate 51, time 0 309s) apparently took 44 seconds to work out and enter from scratch on the synth If anyone would be interested in this one, drop us a line and we ll arrange a full review

Nigel Morse of Doncaster has sent a cassette containing five pieces for the Yamaha CX5M MSX Music Computer recorded straight to cassette with no effects As Nigel points out, many of the preset sounds are very usable with his version of *Pipes Of Peace* sounding quite respectable with a selection of bass brass and guitar-like sounds

Morning Has Broken uses a simple three-part guitar/harp-like sound, and sounds as if it was performed in real time, although apparently only the step time Music Composer package has been used *Nikita* is similar with more attention being paid to the bass part, while *Peter Gunn* is even better on the sounds with a killer bass line but less accurate on the timing I tried entering this tune into Activision's *Music Studio* on the Atari 520 ST and thanks to Henry Mancini s composition it certainly can be a difficult one

The final number *We All Stand Together* is more laid back, and shows that the CX5 can be used for gentle, subtle pieces Nigel says the machine is really superb and the software excellent the only difficulty I ve had is with understanding the FM voicing theory, which is totally different from analog synthesis

As we pointed out a few weeks ago there some CX5 bargains about at the moment and the X-Series Owner s Club has a sheet telling you how to fit the CX5 s original tone module or updated SFG 05 version to a cheap MSX micro to create a very powerful micro music system Contact Martin Tennant at The Yamaha X-Series Owner s Club PO Box 494, Bletchley Milton Keynes MK1 1TS Tel 0908 78894

If you have any queries or tips for this column, please write to Mark Jenkins at *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2H 7PP Mark would also welcome examples of your own music on audio or program tape or disc

The world of Prestel

as explored by Ian Graham

If you're a Micronetter who rarely ventures beyond '800# and all it leads to, that's a pity, because Prestel has a lot more to offer – about 300 000 pages more. And if you have access to a Prestel terminal, but identify the service solely with microcomputing or travel agents, then think again. Prestel has done a great deal to make its wares more attractive to ordinary, non-business, non-micronut users.

My first experience of Prestel was in its earliest days when there was little to interest home users and the charge structure almost defied comprehension. After a couple of years off-line, I tentatively returned to Prestel and I've been pleasantly surprised by its improvements. Principal amongst these was the introduction of a range of new private and public message services and a welcome re-organisation of the fee structure.

Message services

Simpatico isn't just one bulletin board. It's a whole family of them, complementing the existing private Mailbox electronic mail. Lonely Hearts is the most heavily used member of the family, closely followed by Penpals and Interests and Hobbies, Meetings and Groups is self-explanatory. Friends caters for young users and Life Begins At … provides a forum for the not quite so young.

Whatever you want to know, whoever you want to race and whatever weird or wonderful pastime you want to chat about, a notice on Simpatico (which everyone can read) usually manages to raise someone somewhere with an answer or an opinion. The boards are usually updated every Wednesday, there is no charge for adding a notice and, like Mailbox, it costs nothing to access the frames. Once a contact has been made through Simpatico, further messages can be exchanged in the privacy of Mailbox.

You can also send and receive telexes at your own home computer terminal. Most private users will rarely, if ever, want to use the telex facility, but access to telex via a relatively inexpensive micro with a modem and communications software *is* of great interest to small businesses, where the cost of a dedicated telex terminal simply cannot be justified in many cases.

Bully for small businesses! – but what if you don't run a business nor need a fellow lonely heart nor want to trace long-lost Uncle Albert nor sell your three-bedroom semi in Yateley (yes, people even try to sell their houses through Simpatico!)? Well, the powers that be at Prestel seem to have realised that Prestel can't just sit and wait for enthusiastic subscribers to seek out information. They have to attract, inform *and* entertain users, especially private users.

When you log on now and select the main index, the first item on the menu is something called Focus. Focus is a collection of lots of different items drawn from all over the shop and brought together as an electronic magazine. It covers such diverse subjects as news, weather, sports, what's on TV and what's on at the theatre. Within Focus, there's also a feature called Spotlight, which aims to reveal the parts of Prestel that many users never reach. And there's a weekly feature article too. If you wish, you can contact Focus directly through Prestel and tell the editorial team what you want to see in future issues.

Television programme schedules have been featured on Prestel for some time, but only as a 'pick of the week' selection. Recently, this was rectified and Prestel now features a full television programme listing, updated daily by *Time Out* magazine. In practice, though, I wonder how many people actually rely on Prestel for news of what's on telly. I suspect business users have a peek at this and other non-business areas of Prestel on their office terminals, but I can't imagine private users running up a phone bill *and* paying 2p per channel selected to look at something that they can get for no extra charge on teletext or in their daily paper.

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An example of Prestel's services

What's New

It's worth keeping an eye on What's New (item nine on Prestel's main index) for games, competitions, quizzes and late holiday offers. What's New is updated daily, but don't worry if you haven't logged on to Prestel for a while – you can look back through past What's new frames quite easily.

Talking of holidays, Prestel's travel pages provide comprehensive details of travel news on land, sea and air – scheduled services, fares, package deals, late availability, delays and so on. Air travel frames can be searched by destination or by airline, but only a few of the largest airlines actually let you book flights via Prestel. That's still largely the preserve of the airlines themselves, tour operators and travel agents.

Local travel and entertainment are also featured quite strongly. I decided to see what Guildford had to offer. After trotting through the indices to locate the local leisure section, I found that Guildford, home of the Yvonne Arnaud Theatre, Guildford Cathedral and the University of Surrey campus, hadn't a single 'coming event' and the city's travel entry, which should have told me how to get there, was disabled (ie, closed, not selectable) presumably because British Rail were editing it. Not very promising.

Education

Does your school or your children's school subscribe to the Prestel Education Service? If not, why not? For once, money shouldn't be a problem, because Prestel is supporting the Department of Trade and Industry's offer of a free modem for secondary and middle schools using microcomputers with unlimited access to Prestel for only £40, the cost of six months subscription to Prestel's Education Service. Time charges are also waived for six months between March 28th and Septem-

ber 27th, so there's still time to take advantage of the scheme. The service is aimed at teachers, children and parents.

Settling up

Paying for Prestel – the amounts, how they are charged, which methods of payment can be used and what proof of system usage users receive – has been to say the least contentious. Charging has been greatly simplified. Outside office hours, when most private subscribers use the system anyway, you pays your quarterly standing charge – plus the phone bill of course. And as long as you don't access any charged frames, that's all you pay. If you're daft enough to use the system during office hours, you fall prey to the dreaded computer time charge too. The main bone of contention amongst users at the moment seems to be that bills are not itemised, so users can't check them. Just as your phone bill doesn't list who you called, when and for hdw long, your Prestel bill doesn't list times logged on and off or frames accessed.

"Rumour has it that keyword searching may come to Prestel"

Searching

Prestel was conceived and launched long before hdme computer ownership reached current levels. Information was and is still located by either keying in the appropriate page number or by going through a series of index frames, in which further options are selected by keying in menu numbers. In other words, users can access and make use of most Prestel frames and services with a simple numerical keypad. The potential of the full alphanumeric keyboard that every home computer user has is not made use of. This numerically-based menu-driven searching is very slow and inconvenient compared to the alternative – searching by keyword. Using this method, to find my nearest town with a London coach service, for example, I would type in something like, *Find travel and coach and London and Guildford or Farnham or Aldershot or Farnborough*.

Instead, it's necessary to repeatedly select towns at random from the alphabetical coach destination indices and test each in turn for a London connection. Very tedious. But rumour has it that keyword searching may come to Prestel.

Despite seven years of, at times, vigorous development and marketing, Prestel still has irritating habits, but it does now seem to be putting more effort into providing more user friendly, interesting and useful facilities. More information providers are taking advantage of Prestel's greatest asset, its interactivity, and not simply treating it as an exotic advertising hoarding. Londoners can make a selection of groceries, pay for them and have the order delivered to their door without stepping outside their front door. Indeed a whole range of goods, from books to perfume or model railways can be bought and paid for by credit card via Prestel. Two banking services are also available via Prestel: Homelink and HOBS (Home and Office Banking Service). Prestel's emphasis has certainly shifted, albeit slowly (almost imperceptibly), over recent years away from a purely business-orientated service towards a service with something to offer home computer users (with the advent of Micronet) and now further along the road to a service with something for the ordinary private user.

"Prestel offers a service to home computer users"

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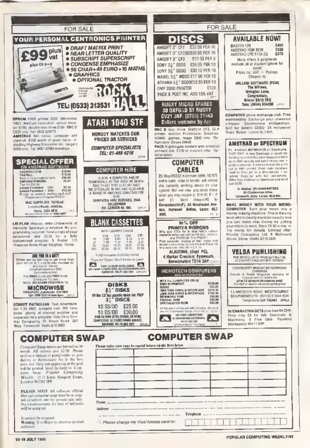
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ADVENTURES! Send large sae for details of Adventure Exchange Service Adventure Probe Magazine and Adventure Contact Magazine to A.E.S 78 Merton Road Wigan Lancs WN3 6AT

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SPECTRUM 30 Software Games, Joystick Joystick interface £90 64 CASH BBC B DFS 20 Software Games Joystick Joystick Interface Datacorder £270 CASH or Both for £340 Tel Glen 01-471 1679 anytime

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CBM 64 Compendium pack 6 month old two joysticks speech 64 mags books etc plus 45 games worth £430 cost over £800 bargain at £220 Mr K Charkdeul Tel 01 723 6107

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AMSTRAD CPC 6128, Colour monitor addtional 3 inch disk drive TV modulator for word processer lot of games and over £200 of software Worth over £750 will sell for £495 Tel 03827 94104

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DRAGON USER

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New Releases

John Cook looks through this week's new arrivals

Amiga

Program Arctic Fox **Type** Arcade **Micro** Amiga **Price** £22 95 **Supplier** Ariolasoft 68 Long Acre, Covent Garden, London WC2

Program Skyfox **Type** Arcade **Micro** Amiga **Price** £22 95 **Supplier** Ariolasoft, 68 Long Acre Covent Garden, London WC2

Program Archon **Type** Strategy/Arcade **Micro** Amiga **Price** £22 95 **Supplier** Ariolasoft, 68 Long Acre Covent Garden London WC2.

Program Seven Cities of Gold **Type** Strategy **Micro** Amiga **Price** £22.95 **Supplier** Ariolasoft, 68 Long Acre Covent Garden, London WC2

Program One-on-One **Type** Arcade **Micro** Amiga **Price** £22 95 **Supplier** Ariolasoft 68 Long Acre Covent Garden, London WC2

Amstrad

Program Trashman **Type** Arcade **Micro** Amstrad **Price** 8 95 **Supplier** Virgin Games, 2-4 Vernon Yard, Portobellow Rd London W11 2DX

Program Battlefield Germany **Type** Strategy **Micro** Amstrad **Price** £8 95 (tape) £13 95 (disc) **Supplier** Cybercom enterprises 18 Egdon Drive, Merley, Wimborne, Dorset BH21 1TY

Program TurboBasic **Type** Utility **Micro** Amstrad **Price** £14 95 (cassette) £19 95 (disc) **Supplier** Hisoft 180 High St North Dunstable, Beds LU6 1AT

Program Write-Hand-Man **Type** Utility **Micro** Amstrad CP/M **Price** £29 95 **Supplier** Hisoft, 180 High St North, Dunstable, Beds LU6 1AT

Program *Souls of Darkon* **Type** Adventure **Micro** Amstrad **Price** £2 99 **Supplier** Bug-Byte Liberty House, 222 Regent St London WC1

There's a few bargains to be picked up in the budget software market at the moment – if you know where to look

As well as the odd original little gem there are the 'recycled' programs ones that were originally sold by different people at higher prices Last week we had *Speed King* from Mastertronic (a Digital Integration full price job) and this week *Soul of Darkon* formerly out from Tasksel

Not a bad little graphic adventure in its time, you can now pick it up, on various formats, for £2 99 If you're short of a bob or two – try it

Atari

Program Quest for Eternity **Type** Adventure **Micro** Atari **Price** £2 99 **Supplier** Bug-Byte Liberty House 222 Regent St London W1R 7DB

Program Rick Hanson **Type** Adventure **Micro** Atari XL/XE **Price** £14 95 (disc only) **Supplier** Robico Software, 3 Fairland Close Llantrisant Mid Glamorgan CF7 8QH

Program Project Thesius **Type** Adventure **Micro** Atari XL/XE **Price** £14 95 (disc only) **Supplier** Robico Software 3 Fairland Close Llantrisant, Mid Glamorgan CF7 8QH

Pick of the week

A real steel of a deal

Program *Stainless Steel* **Type** Arcade **Micro** Spectrum **Price** £8 95 **Supplier** Mikro-Gen, Unit 15 The Western Centre, Western Rd Bracknell, Berks RG12 1RW

I've never been a great fan of the seemingly never-ending stream of Wally games so it's nice to be able to preview something else from Mikro-Gem even nicer that it is their best release for a long, long time

Stainless Steel is said to be the first in a series of games centering around a new teenage hero' named Ricky Steel Identify with that kids However amateur psychology aside this looks like a great game Drawing elements from classic games like *River Raid* and *Defender* (without blatant plagiarism I m glad to say) – how could it fail

Once again the plot is simple only you can save the world stuff, but split up into four stages you getting to your flying car then dashing across the desert flying over a river and finally confronting the aliens in the city What we ve seen are the first three

The main display is largely the same for each – the top 2/3's of the screen is split into three sections A middle two colour display where the action takes place – lots of fast vertical scrolling – with two flanking status screens Finally there is a narrow horizontal strip along the bottom of the screen, displaying the position of the various nasties along the way

The gamesplay is excellent – particularly on this version (it's also on the Amstrad) the graphics are well animated and detailed and the programming (as usual with stuff from the Mikro-Gen stable, however mind-numbing the result is very professional From what we ve seen so far this is going to be big Out late July

Program Island of Xaan **Type** Adventure **Micro** Atari XL/XE **Price** £14 95 (disc only) **Supplier** Robico Software 3 Fairland Close Llantrisant Mid Glamorgan CF7 8QH

Program Enthar Seven **Type** Adventure **Micro** Atari XL/XE **Price** £17 95 **Supplier** Robico Software, 3 Fairland Close Llantrisant, Mid Glamorgan CF7 8QH

BBC/Electron

Program *Thrust* **Type** Arcade **Machine** BBC B/Electron **Price** £7 95 (tape) £11 95 (disc) **Supplier** Superior Software, Regent House, Skinner Lane, Leeds LS7 1AX

Thrust has already been a big success on the Commodore 64 – released by Firebird and quite rightly so The game combines the simplicity of something like *Lunar Lander* with the playability of *Asteroids* and throws in the king of challenge to the brain I've come to associate with *Revs*

The fairly simple (the unkind would say primitive) vector-type graphics and the lack of fleshy effects only go to emphasise that this is very much an entertainment that is going to appeal to the hardened game player (The lack of joystick option is another giveaway)

For those unfamiliar with the game, you manoeuvre your spacecraft (with a limited fuel supply) through underground caverns dotted with annoying enemy gun emplacements but to rescue a pod

This pod is much heavier than you are – so when it attaches itself to your ship via a pivoting rod it makes it all the more entertaining when you have to transverse back through the narrow caverns with it to make good your escape after you ve blown up the planet s reactor system So far so good

Now the bad news *Thrust* on the C64 was £1 99 *Thrust*, released by Superior for BBC

you back at least £7 95 (£11 95 on the BBC) Okey, there s a competition thrown in but it's essentially the same game (at



least the 11 levels I can complete are)

I would still encourage anyone that can afford eight quid to get this one since it s an excellent conversion of a great budget title but such a price difference is going to do nothing to discourage piracy (especially among such a close circle as BBC users) and it s a sad fact that the software industry is still so insecure that such discrepancies occur

C16/Plus 4

Program Frank Bruno s Boxing **Type** Arcade **Micro** C16/Plus 4 **Price** £7 95 **Supplier** Elite Systems, Anchor House Anchor Rd Aldridge Walsall, WS9 8PW

Program Bomb Jack **Type** Arcade **Micro** C16/Plus 4 **Price** £7 95 **Supplier** Elite Systems, Anchor House, Anchor Rd, Aldridge, Walsall WS9 8PW

Program Droid One **Type** Arcade **Micro** C16/Plus 4 **Price** £2 95 **Supplier** Bug-Byte, Liberty House, 222 Regent St London W1R 7DB

CBM 64

Program Souls of Darkon **Type** Adventure **Micro** CBM 64 **Price** £2 99 **Supplier** Bug-Byte Liberty House 222 Regent St London W1R 7DB

Program The Hobbit **Type** Adventure **Micro** CBM 64 **Price** £9 95 **Supplier** Melbourne House, 60 High Street, Hampton Wick, Kingston upon thames

Program Maths Trek **Type** Educational **Micro** CBM 64 **Price** £7 50 **Supplier** Cronos Software PO Box 8, Ormskirk L39 5HH

Program Accounting Part 1 **Type** Educational **Micro** CBM 64 **Price** £7 50 **Supplier** Cronos Software, PO Box 8, Ormskirk L39 5HH

Program *Mandragore* **Type** Adventure **Micro** CBM 64 **Price** £14 95 **Supplier** Infogrammes, 79 Rue Hippolyte-Kahn, 69100 Villeurbanne France

We seem to be getting a fair bit of French software finding itself this side of the Great Divide Luckily most of it travels well – unlike a quantity of their fermented grape juice I encountered recently

Mandragore is an epic program following in the footsteps of the Ultima games and it seems to be well up to standard You adventure across the world of Mandragore with a party of four – either predefined or you can make up your own characters

Although I didn't find the thing immediately accessible, it does seem to have a lure for the ardent adventurer and it s size (big) does seem to justify the price you re not going to solve this one in five hours

Released on Spectrum CBM MSX and Amstrad in late July, watch out for the full review soon

PCW 8256/8512

Program Tasword 8000 **Type** Utility **Micro** PCW 8256/8512 **Price** £24 95 **Supplier** Tasman Software Springfield House Hyde Terrace, Leeds LS2 9LN

Program Tasprint 8000 **Type** Utility **Micro** PCW 8256/8512 **Price** £14 95 **Supplier** Tasman Software, Springfield House, Hyde Terrace Leeds LS2 9LN

Program Prospell **Type** Utility **Micro** PCW 8256/8512 **Price** £29 95 **Supplier** Arnor Ltd, 118 Whitehorse Rd Croydon CR0 2JF

Program Write-Hand-Man **Type** Utility **Micro** PCW 8256/8512 **Price** £29 95 **Supplier** Hisoft 180 High St North, Dunstable, Beds LU6 1AT

Program *Invaders* **Type** Arcade **Machine** PCW 8256 **Price** £19 95 **Supplier** Gemini Marketing, Gemini House, Concorde Rd Exmouth EX8 4RS

If someone asked me to buy 8K of code for £20 I'd expect it to contain the full deployment details of NATO forces in Germany Or maybe Anita Sinclair s phone But a so-so version of a ten year old game?

I accept it s for the PCW – and if it had arrived before *Batman*, my opinion would have been different. But not much

It's *Invaders* – as green as the day it sprouted out of the bepths of the Taito corporation – except it s not as smooth and not as exciting. You can t move and fire at the same time and each wave of aliens starts exactly at the same level – not good

It does have a feature unique to a machine designed as a word processor (you can pause the game by pulling the bell bar of the printer back) out I can t see this being a major selling point for the game I also can't see accountants turning off the spreadsheets for this one

Program *Fairlight* **Type** Arcade/Adventure **Micro** PCW 8256/8512 **Price** £14 95 **Supplier** Softek International 12/13 Henrietta St, London WC2E

Necessity is the mother of invention – so they say If any further proof of this was needed, wise sages could do worse than loading up *Fairlight* into their PCW's At the machine's launch, when asked if it could ever run games – patronising smiles were delivered by the PR people No – they knowingly pronounced – 'this is certainly *not* a games machine Said the chirpy technical types – No way, John no can do can't be done

But it seems with a user base already nudging six figures and rising fast – it seems anything is possible Here we have *Fairlight*, in full glorious 3-D near as dammit the same as the Spectrum version – running on that same piece of kit OK Astounding So how about a *Defender*?

Spectrum

Program Hijack **Type** Arcade/Strategy **Micro** Spectrum **Price** £9 99 **Supplier** Electric Dreams 31 Carlton Cres, Southampton

Program Futurezoo **Type** Adventure **Micro** Spectrum **Price** £7 95 **Supplier** Clwyd Adventure Software 14 Snowdon Ave Bryn-y Baal, Nr Mold Clwyd CH7 6SZ

Top Twenty

1	(1)	Ghosts and Goblins	Elite
2	(2)	Green Beret	Imagine
3	(4)	Kick Start	Mastertronic
4	(–)	Jack the Nipper	Gremlin Graphics
5	(–)	Kung Fu Master	US Gold
6	(3)	Ninja Master	Firebird
7	(5)	Formula One Simulator	Mastertronic
8	(12)	Molecule Man	Mastertronic
9	(20)	Thrust	Firebird
10	(9)	World Cup Carnival	US Gold
11	(8)	Way of the Tiger	Grmelin Graphics
12	(–)	Knight Games	English
13	(1–)	Theatre Europe	PSS
14	(9)	Commando	Elite
15	(7)	Kane	Mastertronic
16	(17)	Silent Service	Microprose/US Gold
17	(19)	Fingers Malone	Mastertronic
19	(–)	Solo Flight 2	Microprose/US Gold
19	(–)	Elite	Firebird
20	(18)	Booty	Firebird

Top Tens

All figures compiled by Gallup/Microscope

Amstrad

1	(1)	Kane	(Mastertronic)
2	(7)	Radzone	(Mastertronic)
3	(–)	Elite	(Firebird)
4	(3)	Harvey Headbanger	(Firebird)
5	(2)	Green Beret	(Imagine)
6	(–)	F One Simulator	(Mastertronic)
7	(4)	Kung Fu Master	(US Gold)
8	(–)	Graham Gooch	(Audiogenic)
9	(–)	Winter Games	(Epyx/US Gold)
10	(–)	Bomb Jack	(Elite)

Commodore 64

1	(2)	Ghosts and Goblins	(Elite)
2	(1)	Green Beret	(Imagine)
3	(6)	Thrust	(Firebird)
4	(–)	Knight Games	(English)
5	(4)	Silent Service	(US Gold)
6	(–)	Solo Flight 2	(US Gold)
7	(3)	Ninja Master	(Firebird)
8	(–)	Way of the Tiger	(Gremlin)
9	(8)	International Karate	(System 3)
10	(7)	Slamball	(Americana)

Atari

1	(1)	Kik Start	(Mastertronic)
2	(6)	One Man	(Mastertronic)
3	(3)	Vegas Jackpot	(Mastertronic)
4	(4)	Action Biker	(Mastertronic)
5	(9)	Cloak of Death	(Bugbyte)
6	(7)	Olive Follies	(Americana)
7	(2)	Last V8	(Mastertronic)
8	(–)	Mercenary	(Novagen)
9	(–)	Scooter	(Americana)
10	(–)	Bem Belly	(Americana)

BBC

1	(1)	Commando	(Elite)
2	(–)	Tennis	(Bugbyte)
3	(4)	Ian Botham	(Tynesoft)
4	(–)	Galactic Patrol	(Mastertronic)
5	(–)	Air Wolf	(Elite)
6	(–)	Citadel	(Superior)
7	(3)	Winter Olympics	(Tynesoft)
8	(2)	Phantom Combat	(Doctor Soft)
9	(9)	Star Force 7	(Bugbyte)
10	(7)	Bruce Lee	(US Gold)

Spectrum

1	(1)	Ghosts and Goblins	(Elite)
2	(–)	Jack the Nipper	(Gremlin)
3	(3)	Molecule Man	(Mastertronic)
4	(–)	Kung Fu Master	(US Gold)
5	(–)	Theatre Europe	(PSS)
6	(2)	Ninja Master	(Firebird)
7	(4)	Knight Tyme	(Mastertronic)
8	(5)	Green Beret	(Imagine)
9	(–)	Fireman	(Mastertronic)
10	(–)	Batman	(Ocean)

NEXT WEEK

Hardware

Brother is introducing a new NLQ printer to replace the M-1009. We put it through its paces

Setting up in business

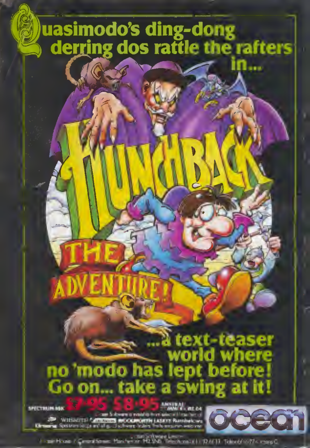
Ever fancied the idea of setting up your own software company and making a go of it? David Ridge has done just that, and outlines the perils, pitfalls and joys of trying to sell your software on a commercial basis

Readers Survey results

At long last, we've collated all the entries. Next week, a blow-by-blow account of what you think about *Popular* wants and all!

The Hackers


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